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ADDRESSES.

SANITATION IN 1890.

The President's Address to the American Public Health Association, at its Eighteenth Annual Meeting, Charleston, S. C., Dec. 16, 1890.

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Members of the Association, Ladies and Gentlemen:

In accordance with the custom in this Association, this address is now presented in order to supply a general view of the present status of public-health work in this country, to bring briefly before us a review of some of the progress made, especially since the last meeting of this Association, and to suggest directions in which effort seems to be needed in order that progress shall be most satisfactory and promising for the future.

Many of you are as familiar as I am with these several topics, but as each member of our Association views them from a different standpoint, there is reason for a hope that what is presented in this address may not be tiresome, and I do not forget that there are some present to whom public health topics must be new. To such persons I may say that, although many of its members are physicians, this Association is not a medical association; although many of its members are especially well informed on subjects relating to personal hygiene, yet personal hygiene is not the subject which is uppermost in the minds of members of this Association. If you ask what, then, are the objects of this Association, the reply is found in its name,—"The American Public Health Association,"—and in its constitution wherein it is stated: "The objects of this Association shall be the advancement of sanitary science, and the promotion of organizations and measures for the practical application of public hygiene."

The founders of this Association recognized the fact that in civilized society the life and health of every person is more or less bound up with the life and health of every other person, that not only is man his "brother's keeper," but on each person there rests some responsibility for the welfare of all,—some responsibility for the public health; and each person has a vital interest in the public health, because of its bearing upon self-preservation.

We have all heard that "self-preservation is the first law of nature;" but I think we must admit that it is not the first, but more frequently the last law of the law-maker. Laws for the preservation of human life and health, in accordance with sanitary science, are of slow growth, and an important object of this Association is "the promotion of organizations" "for the practical application" of sanitary science for the public good, and such organizations for the public good can, as a rule, best exist only through public law, and the ordinary governmental methods.

Governmental methods differ somewhat in the different parts of America, and we must remember that this Association includes representatives not only from the several States of this Union, but also from the Provinces and the Dominion of Canada, and I am happy to say that this year marks a new epoch, for we have with us officially appointed representatives from the general government of Mexico, eminent members of its Superior Council of Health.

If, then, this address is to deal with those objects for which this Association was organized, it must deal with the advancement of sanitary science, and the promotion of sanitary organizations; and, in the United States, the most perfect "organizations" for the practical application of measures for the public good must conform to our form of government, "of the people, for the people, by the people." In my opinion, there should be such a sanitary organization for the United States and for each other general government, for each of the several States and Provinces, and for each of the numerous local governments.

Advancement of Science. The Causation of Diseases.—It seems evident that no great and substantial progress can be made toward the prevention or avoidance of a disease until we have knowledge of its causation. Therefore the work which it is most important shall be first accomplished is that which shall yield us knowledge of the causation of each disease. Within recent years much progress has been made in this important fundamental knowledge, thanks especially to two en-

lightened governments—Germany and Great Britain.

It should be clearly held in mind that there are seldom less than three important factors, neither of which can be neglected in studying the causation of a disease. For instance, there is (1) the "specific" cause, (2) what (when dealing with atmospheric conditions) I have called the "controlling" cause, and (3) the "predisposing" cause.

Causation of Consumption.—By all means the most important addition to our knowledge in this field, is that for which we are chiefly indebted to Dr. Robert Koch, of the Imperial Board of Health of Germany,—the definite knowledge of the tubercle bacillus—the "specific" cause of consumption, the disease which causes the greatest mortality, in this country, and throughout the world.

Every year there is being rapidly added to our knowledge, details of the controlling conditions, predisposing causes, and modes of spread of that most important disease—knowledge which will enable us to explain the methods by which this most dread disease may be prevented.

Causation of Pneumonia.—The necessity for further knowledge of the causation of a disease than is supplied by knowledge of its "specific" cause is exemplified in the case of pneumonia, which disease, it is believed, can be artificially produced in lower animals by means of its specific cause,[1] yet the causation of which in man and in animals is certainly proved (by statistics and by direct experiments) to be controlled, in great part, by conditions of the atmosphere.[2]

One attempt to harmonize the facts from these two very different sources, is that by Dr. William B. Canfield, who says: "In the light of recent studies made by Metschnikoff,[3] Baumgarten,[4] Osler[5] and others, it is more than probable that the phagocytes in a healthy individual, having healthy movements, are able to seize and assimulate the invading organisms, and it is only when an individual not well when the phagocytes lose the power to battle against the specific organism of pneumonia from prolonged exposure to cold, that pneumonia sets in."[6]

But experiments more recent than those referred to by Dr. Canfield, by Nutall, Buchner, Nissen, Lubarsch, Prudden and others, indicate that the blood serum, even more than the leucocytes, is concerned in the destruction of pathogenic microörganisms.[7]

Causation of Diphtheria.—Evidence has been accumulating, and it now seems to be established that the bacillus discovered by Lœffler is a specific cause of diphtheria. Dr. Klein, F.R.S., London, has demonstrated that in the cow inoculated with diphtheria, the bacillus passes into the milk. This may account for the spread of diphtheria in some cases, otherwise unaccountable. In the trachea of cats the bacillus is alleged to have caused pneumonia,[8] which was, I suppose, diphtheritic. Some experiments with doves by Babes and Piscariu[9] seem to have been especially well planned, and to have yielded results especially important. They found that the bacillus —the specific "germ"—promptly caused diphtheria in doves whose throats were scarified before the application of the bacilli, but did not cause the disease in doves with perfectly healthy throats. That something analogous to this is true, as a rule, concerning diphtheria in man, was claimed to have been indicated by myself some years ago, especially in my paper on the "Causation of the Cold Weather Diseases."[10] The hypothesis which I then published I still believe to be the true explanation, as to the way in which the throat is irritated and made sore, and consequently susceptible to diphtheria and other diseases, by exposure to the inhalation of air unusually cold and dry. But Dr. K. E. Wagner (*Annales de l'Institut Pasteur*, p. 570, No. 9, t. 4, Sept. 25, 1890) has repeated Pasteur's experiments, producing anthrax in fowls by lowering their temperature by cold water, and has found that it can be done if the lowering is by means of antipyrin. His experiments indicate that when the temperature is lowered the rate of destruction is less than the rate of reproduction of the anthrax bacilli, while at the normal temperature of fowls, and especially when raised by the injection of the bacilli, the rate of destruction of the bacilli is greater than their reproduction, in the bodies of fowls, especially in the blood. Outside the body at such temperature (42° C. to 43° C.) the anthrax bacilli do not form spores, and are killed in nine days.[11]

Experiments are needed to prove whether what is true of anthrax is also true of the other diseases which I have shown to be most prevalent after the cold weather.[12]

Whether or not my hypothesis shall be found to be the correct explanation relative to the en-

[1] Report of Sec. of the State Board of Health, Mich., 1886, p. 315; also Il Morgagni, Oct., Nov., Dec., 1888; also Trans. Md. Med. and Chirurg. Fac., April, 1889, p. 112; also Bulletin Géneral de Thérapeutique, Paris, Dec. 15, 1889, p. 520; also Boston Med. and Surg. Jour., Jan. 23, 1890; also Therapeutic Gazette, Vol. xiv., No. 2, Feb. 15, 1890, p. 142.

[2] "The Causation of Pneumonia," Report Mich. State Board of Health, 1886, pp. 246-324; also Reports and Papers, Amer. Public Health Assoc., 1887. p. ; also Bulletin Géneral de Thérapeutique, Paris, Dec. 15, 1889, p. 520; also Boston Med. and Surg. Jour., Jan. 25, 1890; also Therapeutic Gazette, Vol. xiv., No. 2. Feb. 15, 1890, p. 142.

[3] Virchow's Archiv., Vol. xcvi and xcvii.

[4] Zeitschrift f. Kl. Medicin, Bd. xv., 1 and 2.

[5] N. Y. Medical Record, April 13, 1889.

[6] Trans. Md. Med. and Chirurg. Fac., April, 1889, p. 112.

[7] T. Mitchell Prudden, M.D., in Med. Record, N. Y., Jan. 25, 1890.

[8] "Public Health," Minnesota State Bd. of Health, Vol. vi., No. 4, June, 1890, p. 33.

[9] Zeit. für. Hygiene, Vol. viii, part 3rd; The Sanitary Inspector, Maine, July, 1890, p. 6-7.

[10] Report Mich. State Board of Health, 1887, pp. 197-211.

[11] Supplement to the British Med. Jour., Nov. 29, 1890, p. 72.

[12] Report Mich. State Board of Health, 1888, pp. 143-169; Jour. Amer. Med. Assoc., Jan. 18 and 25, 1890. pp. 73-84, 116-129.

trance of diphtheria, experiments indicate that it is true, in part at least, relative to pneumonia,[13] and the fact now seems to be established that diphtheria, small-pox, pneumonia, and some other diseases that usually enter the body by way of the throat or air passages are increased in prevalence at such times as people are exposed to cold atmosphere.

Quarantine.—It is significant of great progress, I think, that the diseases which it now seems most important to dwell upon, are not the same as in former times. Comparatively little is now said of small-pox, cholera, or yellow fever. In this country these diseases are not such important causes of death as consumption, diphtheria or scarlet fever. For this result, general progress in sanitary administration must receive much credit; but I think that, in this country, much credit must also be due to the greatly increased efficiency of the quarantine services, notably at such important ports as New Orleans, Quebec, and New York. Here, in Charleston, the efficiency has been greatly increased.

The United States Government, also, has, in recent years, done very much more than ever before for the establishment, equipment and maintenance of quarantine stations.

A continuance of this work is desirable; but, for substantial progress, something more than merely continuing the present methods of quarantine is needed. Diphtheria and scarlet fever should be excluded by quarantines; but the entire country is permeated with those diseases, and with the still more important one—consumption; and a Health *Department of the Interior* is needed to be established at Washington, even more than is a continuance of quarantine.

Cholera.—To be forewarned *should* be to be forearmed; but our long continued immunity from cholera in this country has led to a general belief that there is no longer danger from cholera in the United States,—a belief which may be true, but, in my opinion, is not fully supported by facts. The constant presence, throughout the United States, of typhoid fever,—*a disease which is believed to be spread in almost the same ways in which cholera is spread* should, it seems to me, teach us more humility as to the assumed sanitary superiority of our people and their surroundings, and should lead us to urge the people to adopt those measures which are now known to be restrictive and preventive of both cholera and typhoid fever.

It should not be forgotten that our greatly improved systems of quarantine at our leading seaports do not yet ensure us against the introduction of cholera in the same manner in which it was introduced in 1873 when three distinct outbreaks of cholera, in widely remote parts of the United States, were traced to the unpacking of personal effects of immigrants,—at Carthage, Ohio; Crow River, Minnesota, and Yankton, Dakota. So long as conditions are permitted to remain which result in the annual spread of typhoid fever in every State of this Union, there is good reason to believe that cholera would spread, if introduced at a season of the year favorable thereto.

It should be, but is not, generally understood that there is coming to be a thickly-populated area in a portion of this country in which by reason of alkaline waters the inhabitants are probably especially liable to typhoid fever, cholera, or other diseases propagated by microörganisms which enter the body by way of the alimentary canal, and which microörganisms are generally destroyed by the normal acid of the healthy human stomach.[14] It is not probable, but it is possible that if cholera should become once thoroughly established in the warmest portion of the region of alkaline waters in this country, it might possibly find there a permanent home, as it has in the brackish waters of the Ganges in India.

The bare possibility of such a calamity as the permanent addition of cholera to the diseases constantly present in this country should prompt the United States government to a thorough investigation of the subject, lest, through careless disregard of such duties by the government, the lives of thousands, perhaps millions of our people should be jeopardized.

Typhoid Fever.—But, after all, is cholera a more fatal disease or one more to be dreaded than its twin destroyer—typhoid fever? The number of deaths from typhoid fever reported as having occurred in the United States during the census year 1880, was 22,854;[15] and it is probable that not much more than half of the deaths were reported, because the method of collecting the statistics of death for the U. S. Census is known to be very defective. We are apt to look with contempt upon the East Indians for living under conditions which permit their destruction by cholera; while at the same time our own people are permitted to be swept off by the thousands in every year by a disease which we believe to be propagated in almost precisely the same manner that cholera is, and our National Government is doing absolutely nothing to prevent its continuance—does not even grant to its National Board of Health a dollar to investigate and report on the best methods for the prevention of this great waste of life and treasure that continues to go on notwithstanding the belief of leading sanitarians that in great part it is unnecessary, and might easily be prevented without the use of more money

[13] Dr. Vito Platania, in Italy—Giornale intern. delle scienze mediche, fascicule v.; also Bulletin Géneral de Thérapeutique, Paris, Dec. 15, 1889, p. 520; also Boston Med. and Surg. Jour., Jan. 23, 1890; also Therapeutic Gazette, Vol. xiv, No. 2, Feb. 15, 1890, p. 142.

[14] Eighteenth Annual Report of the Local Gov. Board, Eng., 1888-9, Supplement containing Med. Officer's Report for 1888; pp. 517, 521, 524.

[15] U. S. Census, Vital Statistics, Vol. xii, part ii, p. 366.

than is annually wasted through preventable sickness from this disease.

I think it is important that the Government should investigate the reason for the prevalence of typhoid fever, "mountain fever," etc., in the region of the Rocky Mountains, and especially in the region of alkaline waters. Such an investigation might throw much light upon the subject of the causation and better means of prevention of fevers throughout the entire country.

Causation of Yellow Fever.—Are not all the facts known relative to yellow fever, compatible with the belief that the disease is caused by the inhalation (or otherwise taking into the human body) of the *products* of the growth, reproduction, or life processes of some organism, probably microscopic in size, which organism may not be capable of reproduction *within* the human body, but is capable of reproduction in filth *outside* the body, at high temperatures, but which organism is destroyed by a freezing temperature?

If there is such compatibility in the facts, is it not desirable that the United States Government should take such measures as shall ensure the thorough searching for such hypothetical microörganism, not in the bodies of yellow fever patients, but in localities known to be infected?

Is not the importance of this subject, either as affecting the lives of citizens of this country, or as affecting the money interests of our people, sufficient to warrant the employment of a number of investigators, and the expenditure of considerable sums of money for investigations in the directions indicated by the facts in the possession of physicians and sanitarians?

It has been found that without the presence of oxygen (as in the human body) the cholera bacteria produce their poison more energetically and more quickly than in the presence of air; but when developed in the absence of oxygen the cholera bacteria are much more sensitive, traces of acid being sufficient to destroy them. When they first leave the body they are, therefore, easily destroyed by the gastric juice in the healthy human stomach, and cannot reach their habitat in the intestine, but if developed outside the body, in the presence of air, the bacteria soon become aërobic and not so easily destroyed. This seems to explain why cholera (like typhoid fever and yellow fever) is only seldom directly contagious, and why the disease is contracted in an infected locality.[16] Something similar or analogous to this being true in typhoid fever, and a noticeable fact in yellow fever, the facts respecting the cholera bacteria may aid in the search for the specific cause of yellow fever.

A Possibility of the Prevention of Cancer.—A study of the locations of 7,881 primary carcinomata,[17] as illustrating the probability of a cancerous microbe, has led Dr. Edmund Andrews, of Chicago, Ill., to believe that the facts he has collected and presented make it probable that a microbe exists, and prove the importance of searching out the microbe; also that much can probably now be done towards preventing this disease, by measures looking to the prevention of access of microbes to those parts of the body most susceptible to primary cancer, especially the lower lip, its liability to primary cancer being "8,448 times greater than a similar area of the intestine."[18]

In this connection may be held in mind, an epidemic or outbreak of cancer attributed to the use of cider in the making of which water from an impure source was used.[19]

Inflammation—A proposed general advance "all along the line."—It is coming to be the general belief of physicians, and especially of surgeons, that nearly all inflammations are caused by the presence of microörganisms. (Some of the most common of these pus generators are the round ones—the micrococci, sometimes grouped by twos, and in chains, etc.—*staphylococci*, and *streptococci pyogenes*, three varieties of each: the *albus, aureus and citreous.*)

Some of these microörganisms are now very widely and generally distributed in thickly inhabited places, while in sparsely inhabited regions, especially in mountainous regions, they are not so generally found. I think we should put with this fact another one—that most new States and localities are, apparently, good health resorts. I remember well that, many years ago, certain States in this Union were considered exceptionally healthful as regards diseases of the lungs, while now the mortality statistics in those States show the greatest proportion of the deaths to be from diseases of the lungs. Part of this change may be due to a change in the average age of the inhabitants, but I think a part of it is due to the fact that the microscopic causes of inflammation have constantly been increasing, so that now the carpets and upholstered furniture in most residences, the floors of most public assembly rooms, the clothing, hair, beard and hands of most of the inhabitants, are infected with these microscopic causes of inflammation.

[16] Amer. Jour. Med. Sci., July, 1890, p. 77.

[17] "1. Other things being equal, primary carcinoma is most frequent on those surfaces which, by their position, would be most accessible to free-swimming microbes or spores derived from without the body.

"2. The liability to cancer is increased if the epithelial surface is so situated that the spores can remain upon it for at least some hours without being swept away, as on the lower lip; but the liability is greatly diminished if the parts are frequently swept off, as the globe of the eye by winking, or the œsophagus by swallowing food and drink.

"3. The liability to cancer is great if the membrane has vast numbers of deep glandular follicles, into which the spores can penetrate and lie free from disturbance, and have direct access to the more delicate epithelial cells, as at the pyloric end of the stomach and the follicles of the mammary glands.

"4. Those portions of the skin which are usually uncovered are oftener attacked than those covered with clothing and constantly brushed by its friction. The skin of the face, for instance, produces more cancers than all the covered portions of the integument combined."—JOUR. OF THE AMER. MED. ASSOC., November 23, 1889, p. 739.

[18] JOUR. OF THE AMER. MED. ASSOC., November 23, 1889, p. 742.

[19] Science, Vol. xiv., No. 342, August 23, 1889, p. 129.

The surgeons have been acting upon this comparatively recent addition to our knowledge, and to those of us who practiced surgery only as long ago as during the late war, the successes in recent surgery are marvelous. Not long since, I listened to the recital of the details of fifty-two successive surgical operations, each involving the opening into the abdominal cavity, and each was successful. (Trans. Mich. Med. Soc., 1890, p. 349.) My belief is that much of such wonderful success as is now achieved by the leaders in surgery is due to the advance of our knowledge upon what was formerly known as "the germ theory of disease," which gave rise to what was known as "antiseptic surgery," which is now giving place to what is known as "aseptic surgery." The septic microorganisms are now kept out of wounds, pus does not form, inflammation does not occur, the wounds heal, and the patient recovers.

What I am about to propose may seem to some of you at first as Utopian, but I hope to be able to enlist your enlightened sympathies in the direction of a movement designed to do away with all inflammatory diseases of man, in a manner analogous to what has been done by the leading surgeons in doing away with inflammations following surgical operations. Let us glance at the stupendous character of the suggestion—to gradually but eventually do away with all inflammatory diseases! No more consumption, pneumonia, bronchitis, laryngitis, pharyngitis, tonsillitis, rheumatism, etc., including nearly all the dangerous communicable diseases.

So far as relates to the dangerous communicable diseases, such as small-pox, scarlet fever and diphtheria, sanitarians now know how to restrict, and perhaps to stamp out most of them, and they are doing this as fast as they are supported in doing it by Governments, but the measures I have to suggest would, I think, tend to aid greatly in that work, and, in addition, would aim to *place at once all inflammatory diseases on the list of preventable diseases*—diseases which we think we know how to prevent just as soon as the people generally shall come to understand the methods proposed, and shall generally coöperate in the employment of those methods.

Without elaboration,[20] my proposition may be put in the form of preamble and questions, thus:

Since nearly all suppurative inflammations are breeding-places for microörganisms which, when they gain entrance into another living body (or into another weak or injured spot in the same body), are capable of again starting the inflammatory process, therefore,

Should not all purulent discharges, and all pus which is accessible, be destroyed or disinfected? Should not the aim be thus to restrict the spread, and eventually to stamp out all inflammations?

Immunity through inoculation of attenuated virus, albumens and ptomaines.—It has long been known that all animals constantly give off poisons which, if accumulated, are fatal to their own existence.

Certain vegetable ferments which produce alcohol, are said to be rendered inactive by the presence of no more than 2 per cent. of alcohol.[21]

Pasteur says: "Many microbes seem to give rise in their cultures to substances which have the property of being harmful to their own development."[22]

There seems to be a universal law that all living organisms form poisons to themselves; and there is good foundation for the hope that there may be found methods of using those poisons for the destruction of those microörganisms which cause diseases of man, or otherwise for the prevention of those diseases.

Immunity against Rabies.—Prof. Welch says: "There can be no doubt whatever that it is possible to render animals immune against rabies both before and after inoculations which would otherwise cause the disease. The independent and careful experiments of Ernst in this country are free from all partisan bias, and have fully confirmed the statements of Pasteur and others upon this point."[23]

Prof. Henry Sewall, of the Michigan University, demonstrated the possibility, through injection of snake poison, of rendering the organism immune to the bite of the rattle-snake.[24]

The experiments and practices of Pasteur and others, for the purpose of securing for mankind immunity from dangerous communicable diseases, through the inoculation of the body with the attenuated virus of such diseases, have, for several years, kept this subject before the people, and there has seemed ground for the hope that eventually success would crown the efforts being made in this direction, and if once the principle is learned with reference to one disease, then there is hope with reference to the other diseases. But nearly all such efforts have been made by individual workers, at their own expense, and in such irregular times as they are able to take from their regular avocations by which they maintain them-

[20] I hold clearly in mind methods which if adopted, would, I think, probably be effective, but the statement of them cannot be attempted here. Among the most important measures would be the disinfection of all sputa, pocket handkerchiefs, etc.

[21] "Immunity through Leucomaines," by Eusebio Güell Bacigalupi. Translated from the second French Edition by R. F. Rafael, M.D. J. H. Vail & Co., New York, 1889.

[22] Comptes Rendus, Séance du 26 October, 1885, p. 771. M. Pasteur said:

"As far back as the year 1880, I had instituted research in order to establish the fact, that the microbe of chicken cholera produced a sort of poison of this microbe.

"One would say, that immediately, there springs into existence a product which arrests the development of the microbe, whether cultivated in contact with the air, or in a vacuum.

"Mr. Raulin, my former assistant, to-day Professor to the Faculty of Lyons, has shown, in the remarkable thesis which he sustained at Paris March 22, 1870, that the vegetation of the *Aspergillus niger* develops a substance which arrests, in part, the production of this mold when the nutritive medium does not contain salts of iron."

[23] William H. Welch, M.D., Trans. Maryland Med. and Chirurg. Faculty, April, 1889, pp. 170, 171.

[24] Mentioned in British Med. Jour., November 29, 1890, p. 1264.

selves. A few workers have been employed by Governments, but there is no such Governmental support of such investigations as the immense importance of the subject demands, and especially not in our own country. The United States Government can be commended for what it does in this direction relative to the health of *domestic animals*, but what *can* one say, by way of apology for a Government that appropriates hundreds of thousands of dollars to study the causes of diseases of domestic animals, and then fails to appropriate as much to do a similar work for the lives of the people? I wish, however, to commend what has already been done by the U. S. Government.[25] I have already mentioned what it has done for quarantine; but I believe there is promise of great good to the human species as a result of the Governmental researches into the causation of diseases of animals. The work of Drs. Salmon, Smith and Schweinitz, of the U. S. Department of Agriculture, looking to the production of immunity in animals exposed to hog cholera, has added greatly to our knowledge of the underlying *principle* in the production of immunity to dangerous communicable diseases of animals and of man.

Dr. Welch has said: "That immunity against infectious diseases may be secured by the injection of chemical substances produced by the growth of specific bacteria, was demonstrated first by Salmon and Smith in the case of hog cholera, and has since been demonstrated by Roux and Chamberland for malignant œdema, and by Wooldridge for anthrax,"[26] both dangerous diseases of man as well as animals.

Published accounts of experiments by Dr. Schweinitz,[27] and also by Frederick G. Novy, Sc.D., at the Michigan State Laboratory of Hygiene, indicate that by the inoculation of an animal with the albumens and ptomaines formed in culture liquids by the life-processes of the germs of hog cholera, the animal becomes insusceptible to hog cholera, whether exposed to the disease by inoculation or by direct contact and association with animals sick with the disease. Dr. Schweinitz was even able to produce immunity in an animal by inoculation with a pure chemical prepared synthetically in the laboratory. The results of these experiments are in harmony with facts already known.[28] Perhaps the term "attenuated virus" may still be used if we consider that the "attenuation" consists in the destruction of the germ, and in the saving of its products for use in the production of immunity. Of course much remains to be done before this knowledge can be made directly available in the prevention or restriction of dangerous communicable diseases of man, and the sooner that work is done the sooner the thousands of human lives now lost through those diseases may be saved. Such work is for the general good, and should be done by the General Government. It should be done with reference to diseases of man, and not confined to diseases of animals, nor even to diseases which, like rabies, affect man and animals.

Is it not time that human life should be recognized as a proper object, and the most important object of solicitude on the part of the National government of the United States?

It will be a great gain, however, if it can be brought about that the government shall do such work, even if only for the saving in money values to the people, which, undoubtedly, would be immense.

Antidotes to Diseases Already Acquired.—At the recent International Medical Congress in Berlin, Dr. Koch, of the Imperial Board of Health, referring to his now famous consumption cure, said: "My researches on this substance, therefore, although they have already occupied me for nearly a year, are not yet completed, and I can only say this much about them, that guinea pigs, which, as is well known, are extraordinarily susceptible to tuberculosis, if exposed to the influence of this substance, cease to react to the inoculation of tuberculous virus, and that in guinea pigs suffering from general tuberculosis even to a high degree, the morbid process can be brought completely to a standstill, without the body being in any way injuriously affected." . . . "This opens up an oft-promised field of work, with problems which are worthy to be the subject of an international competition of the noblest kind." . . . "Allow me, therefore, the expression of a wish that the nations may measure their strength on this field of labor and in war against the smallest, but the most deadly, foes of the human race; and that in this struggle for the weal of all mankind, one nation may always strive to surpass the other in the successes which it achieves."[29]

Certainly we can all join with Dr. Koch in such wishes for National effort for life-saving work; but I think that, among all the countries represented at the International Congress, there are few governments which occupy such an enlightened position on the subject of sanitary researches as does the German Empire. If our own National Government would even do as much as to publish and thoroughly disseminate among our people the important results of the researches made by the German Imperial Board of Health, our people would have cause to rejoice, and probably thousands of human lives would be saved through the knowledge thus obtained. Some-

[25] JOUR. OF THE AMER. MED. ASSOC., July 5, 1890, p. 1.
[26] William H. Welch, M.D., Trans. Maryland Med. and Chirurg. Fac., 1889, p. 172.
[27] Med. News, Philadelphia, September 6, 1890, pp. 231-9, and October 4, 1890, pp. 332-5.
[28] The substance used by Dr. Koch for the eradication of consumption is not yet made known, but it may be expected to be in line with those facts.
[29] Journal of the Am. Med. Association, Vol. xv, No. 10, Sept. 6, 1890, p. 370.

thing in the direction of such publication has recently been done by the U. S. Marine-Hospital Service. But much more than has yet been attempted should certainly be done in that line. And if our government were to wake up to the importance of doing what the highest interests of its constituents demand—cause researches to be made for the creation of such knowledge—it can find as bright intellects and as faithful workers among our own scientific men as there are in any country; and in a short time the world might be as much indebted to the United States Board of Health for life-saving knowledge as it now is to the Imperial Board of Health of Germany.

While we accord great honor to Dr. Koch, who discovered the specific cause of consumption, and who now thinks he has discovered its antidote, let us not forget that it was an honored member of our own Association, our President in 1887, Dr. Sternberg, of the U. S. Army, who first discovered the specific cause of pneumonia, a disease which, as a cause of mortality in this country, ranks only a little lower than consumption; and, if the subject were followed up, it should yet yield results somewhat comparable with those reached by Dr. Koch with reference to the somewhat similar disease which he seems to have conquered.

Let us consider for a moment the prospective importance of such a discovery as that suggested by Dr. Koch: It is not claimed that all deaths are reported in this country, but the reported deaths in the United States from that one disease, consumption, in the single census year 1880 were 91,270; without doubt more than 100,000 such deaths occur in the United States in each year. If, as stated by Dr. Koch, "in guinea-pigs suffering from general tuberculosis even to a high degree, the morbid process can be brought to a standstill, without the body being in any way injuriously affected," there is certainly ground for the hope that something approaching that can be done for the human being, and that, if sufficient intelligent effort be put into the research, the substance which will do this can be found, even if it has not already been found by Dr. Koch. Let us suppose that our own National Government were to pay for such researches, and that annually the lives of one-half, or even of one-fourth of the 100,000 of our people, who otherwise would have prematurely died, were to be saved. How would that compare with the work of the Agricultural Department of our government, for the distribution of garden seeds? How would provision for such work by Congress compare with its work for the protection of our infant industries? How would it compare with any work that has been done by Congress during the past twenty years? I admit that in 1879 it established a National Board of Health; but the government failed to sustain the Board long enough to permit of many such researches as those I suggest, although, as long as it was sustained, it did excellent work.

In comparing public-health work with the work of the U. S. Agricultural Department, I do not forget that—

> That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all,—the parent and precursor of all other arts.[30]

But all must concede that agricultural art has now made such wonderful progress that there is no longer need for more, to fully sustain not only the necessities of man, but to supply many luxuries. Superfluous effort, therefore, might well be diverted from agriculture, to supply those provisions for public-health work for the want of which hundreds of thousands of our people actually prematurely perish, and hundreds of thousands more drag out a miserable existence.

So many of our people are now raising farm products, that that is claimed to be a comparatively unprofitable occupation.

Apparently, then, this country needs fewer farmers, more sanitarians.

We welcome to our ranks, however, not only farmers, but all good people.

They have departed, but their works continue.—Custom and humanity dictate that there shall be public recognition of the services of those who have publicly labored with us, and who have ceased their labors, but whose good work will go on down through the ages. Considering our numbers, and the average age of our members, it is to be expected that in every year death will overtake some of us. Before the time for our next meeting, some of us will have passed over to the "great majority." Since the last meeting, so far as I know, only three of our members have died: Dr. Charles Linnæus Allen, Secretary of the State Board of Health of Vermont, who was elected a member of this Association in 1888; Dr. J. H. Baxter, Surgeon-General of the U. S. Army, a member of this Association since 1876; and Dr. William Brodie, President of the Board of Health of Detroit, Michigan, a member of this Association since 1873. Dr. Brodie had long been a prominent member of the medical profession; he had been President of the State Medical Society of Michigan; and President of the American Medical Association. It was largely through his work that this Association held its successful meeting in Detroit in 1883. Dr. Brodie was President of the first Sanitary Convention held under the auspices of the Michigan State Board of Health.

I trust that a committee or the Secretary of this Association will make fittting records of the

[30] James F. W. Johnston.

services of our deceased brothers, and of tributes to their memory.

Death of Sir Edwin Chadwick.—Since our last meeting, sanitary reform has lost an able advocate, in the death of Sir Edwin Chadwick in England. In recording his death, the *British Medical Journal* said:

> Few men have deserved better of their country than the veteran sanitarian whose death, at the advanced age of 91, we have to record. His investigations of the sanitary condition of London, dating back to 1847, were the official starting point of a reorganization of the Health Department, and laid the public legislative basis of the first of a series of sanitary reforms which have been of inestimable value during the last half century in the saving of life and diminution of sickness and disablement. His subsequent services to the cause of army health reform, and his continuous devotion to great and small questions of public and personal sanitation, placed him quite in the first rank of non-medical sanitary reformers. . . . . It has been aptly observed that had he, as a military man, succeeded in destroying one-hundredth part of the lives which he was prominent in assisting to save, his statue would have been erected long since in more than one of the great cities of the empire, and he would have been loaded with honors and titles. As it is, it was not until he attained the age of 90 that he received the honor of knighthood.[31]

Practical Application of Sanitary Science.—I have already touched that subject which was declared the second object of this Association, but mainly to show that the most rapid advancement of sanitary science is made, and is to be expected, where governmental aid is most complete and abundant; in other words, where the people as a whole contribute, according to their means. Having left the subject of advancement of science, I will briefly consider such "organizations and measures for the practical application of public hygiene."

State Boards of Health.—There is reason for a high degree of pride in the wonderful development, in this country, of the State Boards of Health. Although none of them have anything approaching the resources which are placed at the disposal of the Imperial Board of Health of Germany, or of the Government Board of England, and it must be confessed that the debt which humanity owes to Dr. Robert Koch, of the German Board, is perhaps greater than to any man in this country, in any field of human effort, still I think it can fairly be claimed that some of the State Boards in the United States rival the boards of health in the general governments of the most enlightened countries in the world—rival them in the amount of useful services which they are continually performing for their own people and for the general sanitary enlightenment of the world; especially do they rival them in the immediate practical results of their work.

For instance, statistics which appear to be trustworthy, seem to prove that in one State, and apparently through measures inaugurated and maintained by the State Board of Health, the deaths from small-pox have been so reduced that more than one thousand five hundred persons have continued to live who would have died from that disease if its mortality rate had continued as it was before the establishment of the State Board of Health. A thousand five hundred lives saved from small-pox means a saving also of at least six thousand cases of sickness from that loathsome disease.[32]

In that same State, also, the vital statistics seem to prove that through similar though not identical work, there has already been a saving of life from scarlet fever equal at least to five thousand persons, and (if the death-rate was ten per cent.) a probable saving of fifty thousand cases of sickness from that disease.[33]

Nor is this all; statistics indicate that at least *one life a day is being saved* in that State by measures started and maintained by its State Board of Health for the restriction of diphtheria.[34] As the death-rate is about twenty-four per cent., at least fifteen hundred cases of sickness from diphtheria are prevented annually.

At least one other State (Massachusetts) has undertaken statistical effort to learn the effect of such work, and similar saving has been made apparent.

It seems desirable that other States, in which similar work has been done, should collect and publish evidence of the results of their work.

The Value and Importance of Statistics.—On many questions of public policy, no useful conclusion can be reached without a thorough knowledge of the facts involved. And frequently it is important to have accurate knowledge respecting several classes of facts. For instance, in order to know what disease it is most important that we shall strive to prevent, it is necessary to know what disease causes the most deaths, or the most suffering among the people. Mortality statistics supply this knowledge. Again, in order to know whether a disease which is an important cause of death is itself caused by climatic or meteorological conditions, it is necessary to have, and to compare with the statistics of deaths and of sickness, other statistics relating to the various meteorological conditions.

For several years we had at Washington a United States Commissioner of Labor, and he has collected valuable statistics on the various branches of the subject of human labor. We ought to have at Washington an officer charged with the duty of collecting statistics relating to those subjects which bear directly upon human life and health.

There is now a "Department of Labor" in the

[31] British Med. Jour., No. 1541, July 12, 1890, p. 96.

[32] Proceedings of Sanitary Convention at Vicksburg, Michigan, 1889, p. 56.

[33] Proceedings of Sanitary Convention at Vicksburg, Michigan, 1889, p. 58.

[34] Proceedings of Sanitary Convention at Vicksburg, Michigan, 1889, p. 62.

United States Government. Should there not be a "Department of Life and Health?"

Statesmanship.—This is an age of organizations among the people, for the general benefit of all. People generally are coming to have that degree of intelligence, education and culture, which fit them for self-government. The daily papers, the magazines, the excellent postal facilities, the telegraph and the telephone, have served greatly to equalize the intelligence of the people generally; they have served greatly to do away with famines, with continual warfare, and, I believe, with great wars; and certainly they have done much to make the old-time plagues and pestilences horrors of the past.

Yet, although the general governments of countries are making progress toward conforming to the actual conditions among the people, old customs and precedents have a powerful influence in restraining progress; and I think this is more noticeable to members of this Public Health Association than to any other class of people; for the reason that sanitary science is a comparatively new science, and has not for so long a time been available for spreading its knowledge among the people. But already the leading minds in several of the most civilized countries have recognized the fact that the greatest good to the greatest number of citizens consists, first of all, in securing to them life and health. Thus, for instance, Disraeli said that action in this direction "is the wisest statesmanship." Gladstone has expressed himself similarly. And, through the lead of such statesmen, England has its useful general board of health—the "Local Government Board," with its corps of medical officers. Some of the important work of the German Imperial Board of Health is well known.

In our own country, the framers of the Declaration of Independence declared that "life, liberty and the pursuit of happiness" are "among the unalienable rights," to secure which "governments are instituted among men."

In times past, the minds of men and of governments have been kept so occupied with protecting the lives of their citizens from the dangers caused by the battling of other men, hostile tribes, and foreign governments, that little time or energy has been left to devote to the protection of life and health from ordinary preventable causes of death and sickness. Now that men and nations are coming to be less destructive of each other, it is rapidly coming to be seen that by organized effort and general coöperation a great proportion of the premature deaths, and of the sickness from the most common diseases, and the resulting pauperism, insanity and crime, can easily be prevented; and this without any radically new principle of government, but by an extension of the principle of protection of life and property, into new systems of effort. The constitution gives Congress the power to "provide for the common defense and general welfare of the United States."

It is the same now as when the book of Hosea was written—our "people are destroyed for lack of knowledge,"[35] and a government has only to collect, search out, and disseminate among its people "knowledge" of the causation of disease, its modes of spread, and how to avoid causes of deaths and the spreading of epidemic diseases, to make it possible for its people to have safety to "life" and that "pursuit of happiness" which is only possible to persons in health. This implies, however, that the government must constantly maintain statistical investigations and scientific researches into the causation of diseases, and such a complete and thorough system of prompt notification of the outbreak of every dangerous communicable disease within its own country—and also in all parts of the world where it may readily spread to its own country—that the government shall be able to and shall in fact promptly warn all its people endangered, and not only warn them, but shall at the same time place before them the best that is known or can be learned concerning the exact methods for avoiding the dangers to life and health from that particular disease which at the time is threatening.

Only by some such modification of governmental methods is it possible to do for a people that service which it is the highest function of a government to perform.

We hear much about the wisest statesmanship as applied to such questions as relate to our commercial dealings with other nations, questions whether it is wiser to have "free trade" or "protection" of home industries; yet these are questions of small consequence to the people of any country when compared with questions which involve the protection of the lives and the health of the people themselves; because the people can get sufficient food and other necessaries for subsistence under "free trade" or under "protection;" but under neglect of proper governmental protection of life and health, a large proportion of the people prematurely die, and still larger proportions suffer sickness, life-long pain, and physical and mental degradations, from causes which under proper governmental protection are easily preventable. That this is true, there is no longer question; incontrovertible facts are on record proving that it is strictly true. As soon as this knowledge comes to a majority of the people, they will surely demand that the government shall no longer neglect its highest functions; and we may confidently look forward to a "good time coming" when the *safety of life to our people* shall be the first and most important concern of the enlightened government of these United States; when the most important officer in this country, whether he is called Commissioner of Health,

[35] Hosea, chapter iv, verse 6.

Secretary of the Health Department, or President of the United States, shall, at all events, be its wisest sanitarian, or at least its most competent public health administrator. And you, the members of this Association, are and should be laying the foundations, and fitting yourselves for the performance of such highest and most sacred duties; for, in these days of rapid advances in the spreading and equalizing of knowledge, we know not how soon the clamor of our people, for the protection of their lives, may force upon our own National government the proper performance of its highest duties, which it has so long neglected.

ORIGINAL ARTICLES.

BORACIC ACID AND MASSAGE IN PANNUS.

Read in the Section of Ophthalmology at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY C. R. HOLMES, M.D.,

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The treatment of a limited number of affections of the eye and its appendages by massage is, as is well known, not new, and to Donders belongs the honor of having first proposed it, at the Ophthalmological Congress in London in 1872.

Massage has been practiced with or without the addition of ointment; but Landolt was, so far as I know, the first to systematically use boracic acid and massage in granular affections of the conjunctiva and cornea.[1] Acting on this suggestion, I began last year to make observations on a number of cases, and present herewith the results.

New methods and remedies are too often lauded far above their real worth, but after nearly a year's trial, I am satisfied that in the treatment of pannus, whether acute or chronic, it is most valuable, especially when used in connection with one or more of the standard remedies directed toward curing the lid affection. Its chief value lies in the rapidity of its action, a few days frequently giving as good and often much better results than as many weeks by the usual methods.

I have also tried it in cases of granular and follicular conjunctivitis where there was no corneal affection, selecting cases where the inflammation was, so far as I could determine, equal in both eyes, treating one eye with boracic acid powder and friction, and the other with the usual astringents. For a few days after instituting the comparative treatment, the eye receiving massage would appear more improved than the other, but after that the treatment by astringents would lead while the other would either appear stationary or recede, till the plan was abandoned, and the old reliable remedies used in both eyes.

I now use a 5 or 10 per cent. solution of cocaine as an anæsthetic, then evert the lids and separate them as much as possible with one hand, while with the other, by means of a camel's hair brush, as much powder is dusted into the eye as it will contain. Then, by grasping the edge of the upper lid with thumb and index finger, replace the lid in such a manner that the powder will be retained between the cornea and the lids. With the index finger or thumb massage is then begun. I do not anoint the finger as has been recommended for simple massage, for we desire the friction movement to take place between the lid and the globe, which at best is only limited if the globe is stationary. Cocaine gives the patients, as a rule, control of the movements of the eye, and I direct them to look in such direction as will bring the cornea under the finger. In many cases the cornea rolls upwards, and we must endeavor to follow the position with the finger.

The friction should be continued from one to five minutes to each eye, the duration depending upon the density of the pannus and whether it be of long or short standing.

My cases are about equally divided between private, hospital and clinic patients.

Case 1.—Master B., æt. 12, a typical case of severe granular conjunctivitis of four years' standing, with dense pannus. During last three months had to be led about. Much photophobia and lachrymation present on examining the eyes. Can only see movement of the hand in front of his face. The sulphate of copper crystal and atropine was used two weeks, with improvement of lids but not of cornea. Changed to boracic acid and friction, and from day to day we could see the cornea clearing up. In one week vision became $\frac{20}{200}$. The lids during this week received no other treatment and began to look worse, when the mixed treatment was continued from that on until his corneæ were clear and he went to his home in the country. Duration of treatment ten weeks. When discharged he could, with a little effort, read ordinary print.

Case 2.—Mr. R., æt. 45. Contracted granular conjunctivitis four years ago. *Status Præsens:* Lids present the ordinary cicatricial alterations of a well-marked case, having almost completed its course. But the upper third of cornea, especially outer quadrant, is covered by a thick, flesh-colored mass extending upon the sclera for a distance of ¼ inch, where it gradually begins to become thinner. At this point the follicles become plainly visible, assuming a straw color, gradually fading into the normal ocular conjunctiva. The family physician was inclined to regard it as malignant. The other cornea showed the effects of pannus in the form of extensive

[1] See Annual of Universal Medical Science, 1889, Vol. iv., p. B, 70.

nebulæ becoming denser in the upper third, but there is no acute inflammation about this eye. Boracic acid and friction was instituted twice daily, duration five minutes at each sitting, pain controlled by repeated instillations of cocaine. After each treatment there was great vascular activity, which soon subsided. After three days one could notice slight improvement. Patient returned home, where his physician carried out the treatment once daily for three weeks, when he returned with the mass three-fourths absorbed. Another two weeks' treatment at my office was sufficient to remove the mass entirely, leaving central portion of cornea clear, upper portion slightly cloudy, but quite smooth.

I have the records of fifteen other cases treated by this method, but will not take your time nor try your patience by a repetition of results, but I only say in conclusion, that I am fully aware of the fact that but little value can be placed upon *conclusions* drawn from treatment of a few cases. I only offer them for your consideration, being the result of careful, painstaking observation; and hope during the coming year to continue my investigations, profiting by the views and experience of others.

The good results I have obtained from this method of treatment, I attribute to a mechanical cause, viz.: the friction, thus bringing about increased arterial and venous circulation, breaking down degenerated epithelial masses and forcing open occluded lymph channels, thereby preparing the way for rapid absorption of pathological products.

I believe that any other powder equally palpable and unirritating would do as well as boracic acid.

HÆMORRHAGE FOLLOWING EXTRACTION OF A BLACK CATARACT IN A HIGHLY MYOPIC EYE, PROBABLY ASSOCIATED WITH CHOROIDAL CHANGES; ENUCLEATION.

Margaret S., æt. 53, widow, good physique, habitual user of strong drink, admitted to Cincinnati Hospital October 23, 1888. States she has been very nearsighted since childhood. About six years ago she noticed vision failing in the right eye, and since four years the left has slowly followed the same course. By ordinary inspection with pupils dilated by a mydriatic, cataract appeared, almost black in the right and grayish-black in the left eye. Cornea, aqueous humor, iris and tension normal in both eyes. The ophthalmoscope reveals total opacity of both lenses, by candle test field of vision is very defective centrally, fair at periphery in the left eye, while in the right she is unable to locate the candle over a large portion of the right half of field. Heart, lungs and urine normal.

October 27. Under cocaine I extracted the right lens without iridectomy. Lens very large, black and hard, when placed on a piece of white paper only the very margin permitted any light to be transmitted. Healing process not attended with the slightest inflammatory reaction. On the third day patient was permitted to sit up, pupil responding to light. Discolored capsule gives pupil a grayish appearance.

November 10. Under cocaine made a liberal but distinctly corneal incision upwards; liberal because, in extracting the right lens, I underestimated its size and hardness, making its exit through the corneal incision somewhat difficult. After lacerating the capsule and beginning manipulation for expulsion of lens, a hernia of iris and vitreous presented in the wound.

I at once made iridectomy, and delivered a large, black and hard lens without further complications. There was only slight bleeding from the cut iris, the blood being readily expelled, leaving a black key-hole pupil. Figure of 8 bandage was applied. The eye felt comfortable till two hours after the operation, when patient had an unpleasant feeling in the eye, became sick at her stomach and vomited, pain in the eye becoming very severe. The interne found the bandage saturated with blood, some of it trickling down her cheek. The pain was controlled by hypodermics of morphine. Next morning I found swelling of lids, and on exposing the globe discovered a large mass of blood-stained vitreous protruding from the corneal wound and slight bleeding still going on. The hernia was not abscised for several days because patient refused to have it done. There was slight oozing of blood for five days. No microscopic examination was made of the abscised hernia, and I am unable to state whether or not it contained portions of the retina. The shrunken globe was tender and irritable, enucleation was advised, but refused at first. Six weeks later she consented to enucleation, as the tenderness still continued. The eye was removed by Dr. Robert Sattler, who was then on duty.

When seen three months later the capsular opacity, in the pupil of the right eye, was still sufficiently dense to prevent seeing the details of fundus. In this condition her vision was about $\frac{20}{150}$—not improved by convex lenses. Discission was of course the proper thing to do, but on account of my experience with the other eye, I delayed, and when later on I sent for her to go into the hospital to have the operation made, I found she had left the city. I regret having lost sight of the case, as I was desirous of obtaining a good view of the fundus in order to determine the existence or non-existence of choroidal alterations. Whether the color of the cataracts was due to former intraocular hæmorrhage, or to simple densification of all the cortical substance, I am unable to state.

THE COLITIS OF INFANTS.

A Paper prepared for the Cincinnati Academy of Medicine.

BY JAMES M. FRENCH, A.M., M.D.,

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Acute colitis, in the sense of an acute catarrh of the large intestine, occurs in infants as a primary disease or as a part of the affection which has received, among other names, the designation entero-colitis. If, in what I have to say of it in the latter connection, I shall appear to make an unnatural separation of usually associated lesions, I hope to be excused on the ground that I believe that colitis is a part of the disease which is too often lost sight of, particularly in the treatment of it.

It is in this connection with catarrh of the small intestine that the disease is most frequently encountered. It then occurs as a sequence of cholera infantum, or of an acute dyspeptic diarrhœa.[1]

In its primary form colitis is usually due to errors in diet, especially when it affects infants which have passed the weaning period. Occasionally it complicates other diseases, as the acute exanthemata, or arises from the irritation of foreign bodies or parasites in the bowel. It begins, in some cases, gradually, and runs a mild, nearly or quite afebrile course of a few days' duration; in other cases, it begins with sudden alarming symptoms, rapid rise of temperature to 103° or 105°, great prostration, nervous excitation, even convulsions, with frequent, small, bloody stools, consisting largely of mucus. It may then speedily terminate in death, or may last for weeks or months. It so much resembles, in its general features, the dysentery of adult life, that some authors have used the latter term in its description. True dysentery is, however, rare in infants.

The entero-colitis which follows the acute stage of cholera infantum is like a broken truce, or the siege which follows an unsuccessful engagement. The more alarming symptoms of the disease have passed away. The temperature has returned to the normal; the nervous phenomena have subsided; strength and appetite have in part returned; the stools have become more consistent, and the child's appearance has begun to indicate that convalescence is near. But the child continues restless, begins to have pain and is peevish. Fever again appears, ranging, as a rule, from 101° to 102°. The stools become smaller and more frequent. They consist of undigested food, mucus, and as a rule, a variable amount of blood. The odor is fetid in proportion to the quantity of undigested and decomposed food which they contain. The disease now has a tendency to persist, or to recur at short intervals, and often presents the features of inflammation of the large bowel, rather than of the small. When it is persistent, the frequent, small, painful, bloody stools continue day and night. The little patient gets no rest, until, if the disease be not checked, after from three to six weeks, he is relieved by death. When the disease is more remittent in character, there is a gradual failure in strength and loss of flesh, until the little sufferer has become extremely emaciated. His facial expression is that of an aged person, and his integument, often dry and scaly, seems too large for his wasted frame. The duration of the disease in this form is indefinite. Beginning early in the summer, or under faulty hygienic conditions, it usually continues until the season or these conditions have changed. Ordinarily recovery is slow, and relapse is exceedingly common.

When entero-colitis begins with the so-called dyspeptic diarrhœa, there often appears to be almost from its inception a catarrhal condition of the entire intestinal tract, commencing in the stomach and passing, like a wave, along the entire mucous membrane. The symptoms are vomiting, followed almost immediately by diarrhœa, which, after from a few days to a week, almost always presents features characteristic of catarrh of the large bowel, the frequent, small, bloody, mucus stools that I have described.

Entero-colitis is therefore a disease which commences in the upper portion of the alimentary canal and progresses downward, rather than one that affects all portions at the same time. After the brief initiatory period, it as a rule affects only the lower third of the ileum and a greater or less portion of the colon. Unfortunately, the lesions which are found post-mortem in both cholera infantum and entero-colitis are not sufficiently constant to be entirely characteristic. Moderate hyperæmia, if it exist, is a condition which largely disappears at death, and extreme hyperæmia, although the rule, is by no means constant. Loss of intestinal epithelium, a much more constant finding in such cases, occurs as a rule in from six to ten hours after death, and is not pathognomonic of intestinal disease. But intense inflammatory processes soon lead to permanent changes. Follicular ulceration, and cellular infiltration of the mucosa, the submucosa and deeper tunics of the bowel are the common results of the prolonged catarrhal process under consideration. The point that I desire most to emphasize is the fact that lesions occur in the large intestine not only in a large proportion of these cases, but that their character indicates a severity of the diseased process which in most cases quite exceeds that found in the ileum.

That the mucous membrane of the colon should be thus often involved in the morbid process is almost axiomatic, since into the colon must pass the products of all pathological processes situated in the upper alimentary tract. Cholera infantum is variously accounted for, but owing to the fre-

[1] Holt's classification is here followed. "Cyclopædia of the Diseases of Children," Vol. iii, p. 134.

quency with which microörganisms are found in the dejections and in the intestines after death, it has been pretty generally accepted that the disease is due to the action of bacteria which have not yet been isolated. By those who accept this theory, the symptoms are supposed to be due, for the most part, to the ptomaines produced by these bacteria. The local inflammatory process in the large bowel is doubtless in part due to the action of the same bacteria and ptomaines, but it is probably in part a result also of the abnormal fermentation of intestinal contents caused by other germs or by no germs. Chemical changes in all probability occur. The evidences of most intense inflammatory action are found in those portions of the colon in which the contents remain longest in contact with the mucous membrane, namely: in the cæcum, the transverse colon and in the sigmoid flexure. In the primary form of the disease, the lesions, the same in character as those described, are found for the most part in the sigmoid flexure and rectum.

The treatment of colitis is to be considered apart from that of affections of the small intestine only in the comparatively infrequent primary form of the disease. But even in cases of this nature, attention must be given to the character of the gastric and intestinal digestion. Incomplete digestion or abnormal fermentation of any kind may act either as an exciting cause of inflammation, or may tend to prolong its duration when once it has begun. Errors in diet must therefore be carefully rectified, and a diet suitable to the age of the patient must be selected. Only liquid food—milk and beef or mutton broths, is to be permitted. If constipation has preceded the attack, or if from the history of improper diet, the presence of flatus, or the character of the stools, the presence of abnormally fermented matter or other irritant substances be suspected, calomel in doses of from $\frac{1}{10}$ to ½ gr. may be given every three hours until purgation is produced. In a majority of cases, little or no other treatment is required. Severe cases, however, require more active measures, in the manner to be described.

The treatment of entero-colitis is often exceedingly difficult, for here we have, in addition to the disease of the colon, an inflammatory state of the lower third of the ileum. Within a few days from the onset of the disease the little patient becomes prostrated and the signs of emaciation begin to appear. As the large intestine becomes involved, the frequent, often constant desire to defecate, the tormina and tenesmus, prevent sleep, and the condition often becomes alarming. How, then, can we relieve the patient from these symptoms, and what can we do to arrest the inflammatory process? The essential feature of the treatment at this stage is to so change the character of the intestinal contents that they shall no longer be irritating in character, and to give rest to the inflamed mucous membrane. This is to be accomplished by correcting errors of diet, by overcoming defective digestion, and by arresting abnormal fermentation.

For the correction of errors of diet much is to be considered, the recitation of which would here be out of place. It is necessary that the child shall receive the proper quantity of the right kind of food at the right intervals for its age. Not seldom the error will be found to consist in the too early resort to a mixed diet, too frequent nursing, or the use of such inferior substitute for mother's milk as impure cow's milk, condensed milk, or an inferior quality of artificial food, or the use of improperly prepared food. The diet should consist of articles of food which are most certain to undergo easy and complete digestion, leaving as little residue as possible. The passage of healthy fæces from the small intestine into the large in these cases is sufficient to excite peristalsis. For this reason, we must also carefully guard against over-feeding. Cold drinks must be prohibited, except the taking of an occasional teaspoonful or two of water to relieve the excessive thirst which is always present. A copious draught of cold water is almost inevitably followed by an evacuation of the bowel. Digestion may be facilitated by the administration of an active pepsin or pancreatine; and the addition of a small quantity of calomel tends to arrest abnormal fermentation. I have rarely employed any medicines other than those contained in the following prescriptions:

℞. Pepsini (F. & F., or P. D. & Co.), gr xij to xxiv.
Hydrargyri chlor. mitis, gr. ss to j.
Sacch. lactis q. s.
℥. ft. chartas No. xii.
S. One powder every three hours.

Or, in cases in which the intestinal digestion appears to be at fault:

℞. Extracti pancreatis (F. and F.), ʒss to j.
Hydrarg. chlor. mitis, gr. ss to j.
Sacch. lactis q. s.
℥. ft. chart. No. xii.
S. One powder every three hours.

It is better to give explicit directions that the powders be given immediately before or after nursing, and not oftener than once in three hours, as it is in this way possible to more completely rectify the error of too frequent feeding than by any other means, for our instructions as to the giving of medicine are more likely to be obeyed than are those pertaining to the correct manner of feeding the infant, a subject on which every mother has her own ideas. Naphthaline has been highly recommended for arresting decomposition, but although I have had excellent results from it in adults, I have used it in but two or three children. Its odor makes it difficult of administration. The advice of some writers to give small quantities of nourishment at short intervals is not judicious, as it both tends to embarrass diges-

tion and to increase peristaltic action. Ordinarily the diet of nursing infants may be restricted to the mother's milk, and that of infants that have been weaned, to sterilized cow's milk. But in severe cases, it is necessary to discontinue even cow's milk, for a time. By this means alone are we able to free the inflamed bowel from the influences which keep up the inflammation. The removal of food is by no means an easy task in most cases. Something must be given both to provide nourishment and to satisfy thirst. Mellin's food prepared with water instead of milk is well suited to this purpose, as it furnishes ample nutriment and leaves almost no residue in the bowel. In addition to this, an occasional teaspoonful of freshly expressed beef juice and a few drops of brandy may be given.

When the symptoms of catarrh of the large intestine greatly preponderate, thorough irrigation of the bowel is beneficial, even in young infants. It may be practiced with lukewarm water, a weak solution of common salt or alum, mercuric chloride (1 : 4,000), or nitrate of silver. The latter two remedies should be used, I think, only for their action on such parts as may be reached by the introduction of a recurrent catheter, the sigmoid flexure and rectum, owing to the danger of their retention. In some cases I have injected, after a short interval succeeding the irrigation, from 1 to 2 ozs. of warm starch water containing from 1 to 5 drops of laudanum, in infants of an age to justify the experiment. A much needed night's rest has thus been secured and the tide of the disease effectually turned. This procedure is, of course, not to be thought of until all products of decomposition have disappeared from the stools. The same result, so far as arrest of the symptoms is concerned, would follow the administration of an opiate by the mouth, but, although this practice has received the sanction of high authority, I cannot discern its propriety; since with the beneficial action will occur an arrest of digestion. In extreme cases I have used hypodermatically minute doses of morphia with atropia. The worst cases that are encountered are those in which opium has been injudiciously used in the early course of the disease.

By no means the least difficult period in the management of the case is that of convalescence. As the more severe symptoms subside the little patient develops a ravenous appetite, the gratification of which is one of the most frequent causes of relapse. Weeks or months, rather than days, are to be consumed in the return to the diet of health. The first step in the gradual restoration of diet in those cases which have required the suspension of all food, is the gradual addition of milk to the artificial food, until the normal proportion is reached. This then should constitute the diet for several weeks.

Hygienic treatment must of course be pursued, the chief item of which is frequent bathing. If circumstances permit, the removal of the child from the city to the country will greatly hasten recovery.

THE CLINIC.

UTERINE MYOMA—RENAL CALCULUS AND SURGICAL OPERATIONS UPON THE KIDNEY.

A Clinical Lecture Delivered at the Regular Surgical Clinic at Rush Medical College, Chicago, Thursday, Oct. 2, 1890.

BY CHARLES T. PARKES, M.D.,
PROFESSOR OF SURGERY.

(*Concluded from page 52.*)

If no information is gained by this examination, the kidney is fixed as much as possible in the wound by pressure through the anterior walls of the abdomen, and by forceps grasping the perinephritic tissue; then a grooved director is thrust through its substance towards and into the pelvis, which is examined thoroughly in all directions by changing the direction of the probe, until the stone is struck, or none is found. Of course, if, as in this patient, the tissue of the kidney and its pelvis is distended with pus, as soon as the director enters the cavity the pus will flow through its groove, as you see it does in this instance.

The blunt-pointed director is the best instrument to use in this trial; it, or any other cutting instrument, should always be introduced into the kidney some little distance above the lower end of the organ, on account of the frequency of the presence of the artery aberrans entering the organ at this point, and the free hæmorrhage attending the wounding of it. It is also said that fatal hæmorrhage has followed the use of the pointed aspirator used for this purpose, the needle being thrust so far forward as to puncture the main renal artery or vein.

No attempt should be made to fix the kidney by means of forceps attached to its substance, or by threads passed through it, because, owing to the structure of the kidney tissue—its softness and brittleness—they will surely tear out; no fixation will be obtained, merely unnecessary damage done the organ. It can sometimes be fixed very well by passing the finger behind it in the wound.

In case no pus escapes along the groove of the director, as not infrequently happens when the kidney is not much increased in size, and it is thought necessary to make further exploration, a scalpel is carried along the groove of the director through the substance of the kidney, making an incision large enough to admit the finger easily; the finger is passed through it into the pelvis of the kidney and a careful search made in all directions for the foreign body.

If the stone is of large size, filling and distending the cavity of the pelvis, the examination by palpation of its entire surface, as already described, will have probably discovered its presence; in which event the knife is carried directly through the substance of the kidney to the stone, and the proper incision made. If the stone is discovered by the use of the director, without any flow of pus, an opening is made by the knife sufficiently large to admit the finger.

In this patient, in which pus is found to be present, after the introduction of the director, the incision should be made as free as possible, not only for the removal of the stone, but especially to lay open freely the pouches which are so apt to be present in these cases. This will provide for free drainage and prevent the retention of pus in these pockets, as the kidney contracts after operation, leading to the occurrence of secondary abscesses so common in the history of suppurating kidneys.

How will you proceed after the finger has touched the stone, no matter by what method it has reached it? The calculus is carefully and slowly loosened from its bed, by keeping the pulp of the finger in contact with it, and pushing the investing tissue away from it by the finger nail carried in all directions, until the stone lies perfectly loose in the cavity. Then a pair of dressing forceps introduced along the finger, is made to seize the stone firmly, and it is drawn quietly and slowly through the wound until its removal is accomplished.

The directions about removing the stone are thus minutely given, because it is especially desirable to remove it entire, and thus avoid leaving any small pieces, which, owing to its brittleness, can be easily broken off. They often avoid the most rigorous search and become the nucleus, around which may form other stones in the future.

Besides, the calculi are frequently very irregular in shape, having off-shoots developing from the main stem, in different directions, like pieces of coral. These off-shoots are firmly embedded in the calices of the organ or accidental pouches, so that they are easily broken off, and may remain embedded in these pockets if any forcible attempts are made to withdraw the stone before it is entirely loosened by means of the finger.

Of course many times the stone or stones, are found loose in the pelvis of the kidney, or in the cavity of the abscess, or they are smooth of surface and even and regular in their development, in which case there is no difficulty attending their removal.

In this patient, you notice that I have considerable difficulty in loosening the stone which we have found, and I am compelled to enlarge the opening in the kidney very much, because the stone is of large size and very rough and irregular in its shape. Now I think I have it loosened and the incision made long enough to allow of its easy exit. Introducing this pair of forceps, the stone is seized, and while extracting it slowly and carefully, with my finger I push the kidney substance away from its irregular surfaces. Unfortunately I have broken this piece in the grasp of the forceps, away from the main portion of the stone, which accident, not only spoils the beauty of the specimen, but shows you how brittle the concretion may be and how carefully it must be handled. There is no fear of this fragment causing any subsequent trouble because I have it on the outside. The stone is seized again with the forceps, at a larger, denser portion of its surface, and with the same careful method of extraction, it is finally removed entire.

The specimen is fully three inches long and over an inch in width at its widest portion. It is very irregular in formation and shows the presence of the offshoots, to which your attention has already been directed.

The hæmorrhage is very free following the first incision made into the kidney substance, but in my experience, it has never been hazardous or sufficient to cause any anxiety, for the pressure of the finger, introduced through the wound, soon causes it to cease.

The manner of treating the wound is different according to whether pus be present or not. If there be no pus and the kidney not much enlarged, very little special treatment is required.

A large size drainage tube, long enough to reach into the pelvis of the kidney, should be introduced and left for a few days to provide for the easy exit of bloody serum and urine, which will flow immediately after the operation and as a consequence of it. The external wound is closed up to the drainage tube, by means of interrupted silk sutures passed through all the tissues of the edges of the wound in the same manner as in the abdominal operation, although in this operation, there is no peritoneum to be included in them.

The drainage-tube prevents the probability of the occurrence of urinary infiltration.

After a few days clear urine will flow through the tube, when it can be removed and the resulting sinus will rapidly close and securely heal by cicatrization, leaving nothing to mark the occurrence of such a severe operation, but the external scar. The urine passed from the bladder, will show the presence of blood in a greater or less quantity for a few days, gradually resuming its normal condition. This symptom has its advantage, because it proves that the ureter is patulous.

If pus is present, the several pockets in which it is apt to be contained are usually found to be separated from each other by incomplete trabeculæ of connective tissue or kidney sub-

stance. These are broken down with the finger, thus converting the many into one cavity; this cavity is then thoroughly irrigated and washed with some mild antiseptic solution, such as boric acid or with sterilized water.

It is to be remembered, that solutions of powerful antiseptics, especially mercuric bichloride, contain in themselves the elements of extreme danger, in that they may poison the general system or seriously impair any normal tissue which may remain in the organ itself. Hence, if used at all, great care should be practiced and the cavity thoroughly washed out with sterilized water after their use. The use of bichloride of mercury sometimes leads to acute granular degeneration of the kidney.

The ragged portions of débris are then removed, and when thoroughly and satisfactorily cleaned, the cavity is packed to the bottom with iodoform gauze. No attempt being made to close the wound by suture. This treatment is advised, because it is my belief that it is least likely to be followed by secondary abscesses. In all conditions, the external dressing consists of the application of masses of loose iodoform gauze and borated cotton, held in place by a body bandage.

The operation, as you see, is prolonged, and hence likely to be attended with evidences of shock, therefore every provision should be adopted to counteract the dangers which accompany such conditions by the administration of quinine or whiskey before the operation; by keeping the patient's body covered with blankets during the operation and by providing artificial heat through radiation after the patient is put to bed.

The profession has come to the conclusion that chloroform is the best anæsthetic to use during all operations upon the kidney, but no matter what anæsthetic is used, the anæsthetizer should be careful to give as little of it as possible. Often allowing the patient to breathe freely of fresh air, by the removal of the cone, in this as well as in all operations which are prolonged and exhaustive in character.

Kidney stones are developed from the salts of urine, which are normally held in perfect solution and are oftenest found to consist of the crystals of uric acid. Many are made up of oxalate of lime, while some are composed of phosphatic salts. They are found in both sexes and at all ages of life; they vary immensely in number and size, thus they may be so small as to pass easily through the ureters when loosened, and escape from the bladder; or so large as to change very greatly the shape of the kidney which is expanded about them. In form they may be smooth and even, or rough; or possess the greatest diversity in shape and irregularity of surface.

The symptoms indicating their presence have already been described to you as forming the history of an agonizing attack of renal colic. Still there may be no signs present indicating their existence, other than a steady, persistent, deep-seated pain, sometimes burning in character, referred to the region of the kidney, accompanied by the persistent presence of blood or pus in the urine. The suffering in these cases bears no relation to the size of the calculus—one patient from whose kidney I removed a concretion not larger than the end of the little finger, suffered repeatedly with excruciatingly severe attacks of renal colic, while in another with a larger calculus than the one removed to-day, the pain during such attacks was not severe.

These formations may take place in both kidneys at the same time, and when this occurs there is great difficulty in forming a conclusion on which kidney to operate, or whether to resort to surgical interference or not.

In all these cases, the microscopical examination of the urine is very apt to show the salts of which the stone is composed, present in the urine in large quantities.

If there is present a tumor in the region of the kidney, with the history of previous attacks of renal colic, there can be no doubt as to the diagnosis, and surgical interference should be practiced.

Treatment.—The treatment of these cases must be considered under three heads: prophylactic, palliative, and surgical. The latter has been illustrated to you in the operation performed upon the patient before you.

Prophylactic treatment consists in directing your patient's diet—avoiding the use of meats; and advising the free use of water, especially such mineral waters as are known to have a beneficial effect upon the condition of the system, termed lithiasis. The mineral water possessing the best effect is probably the one containing a large per cent. of the salts of lithia. It is my belief that large quantities of distilled water are beneficial. It is generally supposed that people living in countries in which the water used for all purposes contains a large portion of lime, are most likely to suffer from these troubles. It is also supposed that in children poor and improper food accompanied with faulty assimilative powers, have much to do with the production of the disease.

The palliative treatment has reference particularly to the management of the attacks of renal colic, the pain of which is controlled by the use of the preparations of opium, particularly the hypodermic injection of morphia, in doses of such size and sufficiently often repeated as is required to control the pain.

Frequently in severe attacks the careful administration of chloroform or ether to partial or com-

plete anæsthesia is necessary to at least temporarily assuage the patient's agony until the foreign body has passed the ureter.

Hot fomentations freely applied over the painful area and the use of hot baths are beneficial. We know of no remedy, the administration of which through the mouth, will dissolve or in any way diminish the size of these renal concretions. No permanent relief can be given in any other way than by the removal of the offending body by surgical interference.

Renal calculi occasionally become lodged in some portion of the ureter; the most common place of stoppage seems to be near the point of termination of the tube in the bladder: at least quite a number of instances are on record in which the calculus forming in women, has been located in this position by vaginal examination, and their removal attained by operation.

If the stone becomes arrested at other points and cannot be located as in women, catheterization of the ureters can locate it; or if the kidney has become exposed in search of it, the passage of a sound from above will fix its position. When found it must be, and can usually be safely, removed by any operation which will expose its position. Of course any operation for this condition should be post-peritoneal.

The urinary fistula following such procedure is not usually permanent, but heals kindly and rapidly; every precaution for free drainage should be used to prevent urinary infiltration into the loose tissues in which the necessary incision is made.

Suppuration in the kidney and accumulation of pus dependent upon any other causes, such as tuberculosis or other degenerative changes, sometimes lead to the formation of various enlargements or tumors of the kidney which fluctuate freely.

The condition of distention of the kidney substance and its pelvis with pus, is technically called "pyo-nephrosis," and for its relief requires exposure of the kidney in the manner just illustrated. The abscess is then opened by free incision through the kidney. This operation is called nephrotomy. The treatment after the incision is the same as for cases of stone with pus accumulation. A similar distention, frequently reaching great size, follows injuries or diseases which occlude the ureter and there occurs the formation of a fluctuating tumor, the contents of which are clear, pale in color, and contain a slight evidence of the presence of urinary salts. This condition is called "hydro-nephrosis."

While the pus cases always show severe constitutional disturbance, with sweatings, chills, high fever, and other evidences of septic infection, hydro-nephrosis causes very little or no trouble until the increase in size calls attention to the tumor, and produces a varying amount of discomfort.

Aspiration, with a complete emptying of the cyst (for the kidney substance is so attenuated and thinned out it forms nothing but a cyst wall) will sometimes cure a hydro-nephrosis, at other times a cure will only follow free incision and drainage of the tumor by means of a nephrotomy.

In cases of pyo-nephrosis, as the result of pressure necrosis or ulceration from accumulation, the capsule of the kidney is destroyed and the pus leaks out into the surrounding cellular tissue, forming a peri-nephritic abscess, with the local signs of bulging of the space between the rib and crest of the ilium; with hardening and infiltration of all the tissues of the back in this space; with redness of the surface and œdema and finally circumscribed fluctuation. The abscess points and breaks of its own accord or the surgeon incises it. Sometimes the opening in the kidney can be found, at other times not. If a fistula persists after the opening of the abscess, always suspect the presence of a calculus in the kidney. Expose and remove it by the proper surgical operation.

Pyo-nephrosis and hydro-nephrosis are classified under the head of cystic tumors.

There occasionally forms in connection with the kidney, simple serous cysts, and also those dependent upon the presence of the echinococcus or hydatid. Both of these conditions are successfully treated by exposing the tumor, incision and drainage or sometimes by simple aspiration.

It is quite surprising how seldom urinary fistulæ persist even after very extensive incisions and bruising of the kidney. The urine may flow through the wound in the back for a few days or weeks, but if the ureter is patulous, they are quite certain to close. Wounds of this organ heal quite as rapidly and as permanently as those of any other tissue of the body.

The operation of nephrectomy or complete removal of the organ, is a very serious one primarily, and has dangerous sequelæ attending it, even if the patient recovers from the operation, for the remaining kidney, called upon to do double duty, is particularly liable to the occurrence of diseases apt to be fatal.

It should always be remembered that the abnormality of one kidney is not very infrequent, or that the two may be joined together in the peculiar formation of a horse-shoe kidney, sometimes found present. A nephrectomy under these conditions would necessarily prove fatal. The operation should not be advised or undertaken except under the most pressing need, that is, in cases in which the disease or injury is of more menace to the life of the patient, than this hazardous operation.

It should also be remembered that even in advanced disease of the organ, in many cases, there still remains a considerable portion of the kidney substance, able to perform a portion of the normal

function of the organ; a patient with a badly damaged kidney, is in less danger, if some portion remains to do duty, than after the entire removal of the organ. Every means possible should be resorted to, to determine the existence of the abnormality of one kidney before the operation is done. Some surgeons recommend the catheterization of the ureters, in order to establish this fact; others favor what is termed abdominal incision—anterior operation—so that after opening the abdomen both kidneys can be found, before either is removed.

The first successful nephrectomy was done by Simon, of Germany, for an incurable fistula following a difficult parturition.

The disease for which the operation is recommended, are destruction of the kidney from suppuration resulting from any cause; or tuberculosis, if confined to one kidney; or cysts otherwise incurable; for the removal of solid tumors developing in this organ, and for such injuries as are followed by a persistent and incurable fistula; or which absolutely destroy the organ itself, such as gunshot wounds.

The solid growths which we find developing in the kidney are, rhabdo-myoma, adenoma, papilloma, carcinomas and sarcoma; the sarcomas and rhabdo-myomas occur oftenest in infancy or childhood. Adenomas and carcinomas are growths oftenest found in adult life. The sarcomas develop very rapidly and grow to a large size. Their removal is attended with many difficulties, and even if not primarily fatal, does not add materially to the patients tenure of life. The same is true with the carcinomas with the exception that they never attain a great size, because their malignancy leads rather early to a fatal issue.

The adenoma are simple tumors; can be removed safely, and the patient's life may be prolonged in comfort for years.

There are two methods of performing a nephrectomy: first, the lumbar; second, the abdominal. The lumbar is the one most commonly chosen; the operative manipulations are executed outside the peritoneum; free and perfect drainage is easily carried out; and for these reasons it is best adapted for cases of suppuration in the kidney, and all tumors of moderate size.

The abdominal method is of diagnostic value in enabling the operator to at once decide positively that both kidneys are present; it necessitates an abdominal section, hence opens the peritoneal cavity—and no drainage can be practiced unless a counter opening is made through the loin. It is best adapted to the removal of tumors of large size, as it allows perfect control of the growth. The dangers attending both operations are first, hæmorrhage; second, infection; third, uremia from insufficient elimination of urine; fourth, shock.

Hæmorrhage can be avoided by special care in the management of blood-vessels; sepsis prevented by the usual aseptic or antiseptic precautions rigorously carried out; uremia counteracted by elimination and derivation through other emunctories; and shock diminished to a great extent by free stimulation and protection of the patient from loss of body heat.

The lumbar incision for nephrectomy calls for exactly the same incision in all its details, as the one just practiced before you to-day, carried so far as to expose the tumor. After the organ is exposed it is loosened with the finger from its bed of perinephritic fat. As soon as this is accomplished, the blood-vessels entering the hilus are carefully isolated and a needle armed with a double ligature of sterilized silk is carried between the vein and artery, through the pedicle made by these vessels, dividing it into halves, and it is securely tied. The ureter is then sought after, temporarily secured with forceps and divided between them. The pedicle is then cut through, sufficiently far away from the ligatures not to endanger their security, and the kidney is removed.

In cases of suppurating kidney, the organ is often so firmly imbedded in vascular adhesions that bleeding is dangerously free during its separation. If this be the case it is best to ligate the main vessels first.

After the removal of the organ, the ureter may be managed in either of two ways. Its free end is made thoroughly aseptic by the application of the actual cautery or pure carbolic acid, and it is drawn out and fastened to the most dependent part of the external wound; or its extremity may be inverted into its lumen, like the finger of a glove, and the peritoneal edges fastened by sutures.

Quite large and vascular growths of this organ can be safely removed through the lumbar incision, by first securing the base of the mass with a temporary rubber ligature, drawn tight enough to close the blood-vessels. The tumor is then cut away piece-meal without bleeding until it is so far reduced in size that the permanent ligature may be easily applied inside the rubber tube, in the usual manner. The elastic tube is then removed.

Some operators include the ureter and the blood-vessels in the same ligature, but the better plan seems to be to tie them separately.

If no pus is present, the wound is perfectly closed after providing for drainage by means of a large-size drainage tube. If pus is present, the wound is best treated by the iodoform tampons as already described and illustrated to you to-day.

The dangers of this operation are increased by opening the peritoneum, and this accident should be carefully avoided.

When the abdominal method is practiced, an

incision is made through the linea semi-lunaris in the usual manner common to all operations which open the peritoneal cavity. The intestines are pushed out of the way by means of a large flat sponge.

As the tumor is behind the posterior layer of the peritoneum, this layer, too, must be incised before the tumor is exposed. The colon, in these cases usually lies on top of the tumor, and the incision which opens the posterior layer of the peritoneum should be made some distance away from the outer edge of the colon and parallel to it. It must be of sufficient length to allow the operator to have complete control of the tumor, and to provide for its easy removal. The sponge is then withdrawn; and the inner edge of the incision of the posterior layer of the peritoneum is sewed securely to the inner edge of the incision through the abdominal walls; in this way shutting off completely the peritoneal cavity from the field of operation. The blood-vessels entering the tumor are now sought after and ligated. The ureter is found and secured temporarily by forceps, the tumor separated from its attachments and removed.

It is just as well if the tumor is rather large and the space limited, to secure the blood-vessels temporarily by long-jawed forceps, as they can be ligated inside of these after the removal of the tumor.

It seems best to always provide for drainage through the posterior lumbar region; this can be easily done and without fear of hæmorrhage by thrusting a pair of scissors directly backwards to the interval between the last rib and the crest of the ilium and expanding their blades to make an opening through which a large drainage tube can be easily drawn.

The ureter is managed in either of the ways that have already been described in the directions for lumbar nephrectomy.

After the tumor is removed and the manipulations mentioned are satisfactorily carried out, the edge of the posterior layer of the peritoneum which was sewed to the abdominal wound is unfastened by snipping the sutures. The sponge is again used to keep the intestines out of the way while the incision in the posterior layer of the peritoneum is secured closely by means of the continuous catgut suture, thus perfectly isolating the peritoneal cavity from the large space recently occupied by the tumor. The abdominal wound is sutured in the usual manner, the sponge removed, and the external wound closed.

Nephrorraphy is the name given to the operation practiced for the relief of the symptoms accompanying a freely movable kidney.

It has only been during a few years past that the profession has adopted the belief that any operation is required for the cure or attempted cure of such cases. It is possible that it can be justly said that it is only within a few years that the condition of a movable kidney has been recognized as the cause of a certain array of symptoms which interfere materially with the health and comfort of a patient suffering with this affliction.

Such patients as have come under my care have complained of quite serious trouble and have shown well marked evidences of failing health. All of them have become aware of the presence of the movable body and have insisted that the movements of the organ were the cause of much pain, at times even severe, and that the stomach was disarranged in its function—that the appetite was either lost or very much impaired—and that they had lost flesh noticeably and rapidly.

All of these cases had borne children—no doubt the condition occurs oftenest in women who have borne children, still the condition is met with in men.

We know that normally, the kidney is not absolutely fixed in its position—that it is movable to a slight extent in its surrounding loose cellular tissue. For some reason or other after extreme distension of the abdomen its mobility becomes increased in these cases, occasionally to a considerable degree; a true meso-nephron is developed, at the end of which the organ has a range of motion in proportion to the length of the peritoneal fold. Probably such cases as possess a complete meso-nephron are the ones in which the severest pain is felt; which may be due to a twisting of the vessels and the ureter.

In some cases the kidney can be displaced downwards as far as the ilium, or inwards as far as the median line. It moves upon the slightest touch, and can always be replaced into the position in the back which it properly occupies.

The well known shape and contour of the movable kidney can usually be readily palpated with the fingers through the loose and flabby abdominal walls, and hence as a rule can be positively differentiated from any other growth.

If the kidney is only movable in the loose post-peritoneal fat, even if the area of motion is considerable, the operation for its relief is much more simple than in the cases in which the kidney is invested on all sides by the peritoneum, and has a long meso-nephron developed from this tissue.

In the first condition, probably a nephrorraphy will bring about a cure; in the latter, probably a nephrectomy will be required if any operation is demanded.

Most often the kidney is normal in every way except its freedom of displacement. At times it is diseased and enlarged, and this may necessitate the more radical operation. The long meso-nephron makes it very difficult or quite impossible to uncover the posterior surface of the kidney for the application of sutures without opening the peritoneum, an accident to be avoided.

This condition greatly increases the difficulty of finding or fixing the organ at the bottom of the wound made to expose it.

The prognosis as to the operation is favorable—in the matter of permanent cure it should be guarded. The operation has not been done often enough, the cases subjected to operation have not been sufficiently long under observation in all instances, to enable us to speak very positively about them. In my experience, they have all been noticeably improved at first, the appetite has been better, the food better assimilated and the pain relieved. But this favorable result followed during the confinement of the patient in the recumbent position, with little or no disposition to displacement or interference with the organ.

It remains yet to be seen whether the adhesions formed as the result of the operation, are sufficiently firm to withstand the weight of the organ and the influence of the movements of the body, when the patient assumes the erect position and performs ordinary duties.

It is quite fair to mention the fact that quite a number of cases have been reported by surgeons, in which, even after a lapse of two years, there has been no return of the displacement, and the general health of the patient has been permanently benefited. The primary incision for nephrorrhaphy is exactly similar, in all details, to that already illustrated to you to-day for exposing the kidney in the nephro lithotomy just finished. As soon as the peri-nephritic fat is uncovered, the kidney is found. Usually the assistant is able to fix the kidney in its normal position, by pressure against the organ through the anterior abdominal walls, so that it can be easily exposed to view by separating and displacing the surrounding fat. The posterior surface should be widely uncovered. Its capsule should then be incised for a length of two inches, and the edges of the divided capsule stripped off the surface for a short distance in opposite directions so as to uncover the small portion of cortical substance. Then the edges of the elevated capsule should be sutured with silk to the edges of the deep portion of the external wound. The needle should be full curved with a blunt edge, and it should be introduced so as to take up a fair amount of the kidney substance. It should be introduced very carefully, as the kidney substance is very soft and brittle, and easily torn; the silk suture should be drawn carefully after the needle, and without any tension on the kidney, for it is easily torn through the included portion of the organ.

Sutures should be placed, at least, at the upper and lower ends of the opening in the capsule, and a third or fourth one may be applied near its center. When these sutures are satisfactorily in place, the external wound should be closed, as has already been explained and illustrated, except that a narrow strip of iodoform gauze is to be placed in the centre of the wound, reaching from the exposed surface of the kidney to the outer surface of the body. This strip of gauze is left in position for some time, and is said to answer the excellent purpose of establishing a band of cicatricial tissue from the surface of the kidney to the outer surface of the wound, permanent in character, which acts powerfully in fixing the organ in position. In one case in which I adopted this plan, there remains in the centre of the scar a deep depression, which draws the skin inwards, and is no doubt produced by the cicatricial track left by the gauze used in this way.

The external dressings, the same as those applied in the case before you to-day, are designed to keep the wound perfectly aseptic until the healing process is complete.

The wound-stitches can be removed at the end of the week, when, if the case has followed a course free from infection, the wound will be found united. The deep stitches have given rise to no trouble in the cases operated upon by myself, and are left to take care of themselves.

The patient should be confined to the recumbent position for several weeks, so as not to interfere by dragging upon the newly formed and easily torn adhesions.

Some surgeons claim that they are able to control all the symptoms incidental to the presence of a movable kidney, without operation, by a properly fitting pad applied to the abdominal wall against the organ, after returning it to its normal situation, and holding the pad in position by a body bandage.

The operation of nephrorrhaphy is not a danderous one, and further experience with it may give to it a definite and positive position among the surgical operations upon the kidney.

MEDICAL PROGRESS.

Therapeutics and Pharmacology.

SALICYLIC ACID FOR THE PREVENTION OF SCARLET FEVER.—In the *Centralblatt für klinische Medicin*, for October, are quoted by DR. G. STICKER, some of the clinical experiences of Dr. G. de Rosa, an Italian physican, in an effort to curtail an epidemic of scarlet fever by the internal administration of salicylic acid. Out of sixty-six children exposed to infection—twenty-seven patients being down with the disease in the same building—only three contracted the fever, after the salicylic plan of treatment had been put into operation, and in these three cases, the failure was ascribed to the fact that there had probably been a longer exposure to the infection than in the other set of cases. It is recommended that

the drug should be given promptly after there has been danger of infection, the dose being one to five grains daily until the exposure has passed by. Isolation is not regarded as necessary, if all susceptible material shall be brought promptly under the influence of the drug.

KOCH'S TREATMENT OF TUBERCULOSIS: GENERAL EFFECTS.—In a clinical lecture delivered at the Hôpital Laënnec on December 14, PROF. CORNIL (*Semaine Médicale*, December 17) gave the results of further observation of the cases in which he had employed Koch's treatment. With regard to the three patients in whom the first injection had caused albuminuria—in two of them there was then (a fortnight after its first occurrence) no trace of albumen in the urine; the third still showed slight traces thereof, but it is not quite certain that he was entirely free from it before the treatment was begun. In the case of another patient suffering from diabetes and calculous pyelo-nephritis, as well as tolerably advanced phthisis, the urine became rather less purulent after the injection of very small doses. These cases seemed to M. Cornil to show that the renal complications caused by Koch's fluid are merely temporary, and that, even when the kidneys are diseased, the treatment is not absolutely contraindicated, although it must be used with extreme care. With regard to the reaction, Prof. Cornil pointed out that it is a mistake to suppose that after the injection the temperature simply rises to a greater or less height, and then falls to the normal point. In his cases the temperature was taken on the rectum every two or three hours. In one case an injection at 11 A.M. was followed at 7 P.M. by a temperature of 39.4° C. Two hours later it had fallen to 37.4° C., but on the following day, though no further injection had been given, it again rose 39.5° C., afterwards falling gradually and with slight oscillations to normal. The type was that of quotidian fever, lasting two days. In a second case an injection of three milligrams sent the temperature up to 40.8 C. on the second day, to 39° on the third day, and to 39.5° on the fourth, the record being almost normal in the intervals. It was, in fact, an example of intermittent quotidian fever lasting three days. In a third case, that of a child, the injection at first caused a slight fall of temperature, and it was not before the third day that it reached 39.4°, after which defervescence took place gradually. These three patients suffered from circumscribed lupus of the face, and were all in good health, without any abnormality of temperature before the treatment. M. Cornil insists that these irregularities in the course of the reaction should be borne in mind, and that a sufficient interval should always be allowed between the injections so as to avoid any danger of cumulative action. In a patient suffering from lupus erythematosus the general action was extremely intense, while there was no sign of local reaction. In six patients suffering from syphilitic lesions, inoculated by M. Humbert in the Hôpital du Midi, no reaction took place. M. Cornil then gave a summary of M. Hénocque's spectroscopic examination of the blood (see abstract, p. 98), and expressed the opinion that the amount of oxyhæmoglobin gives a fair measure of the effect of the injections, and adds that it cannot be doubted that where it is diminished the patient's general condition becomes worse, and it may be concluded that the injections are doing harm. While not venturing as yet to pronounce a final judgment on the value of the method, Prof. Cornil says that with proper care there is little risk of doing any harm to patients by the injections; that in certain forms of tuberculosis, notably in lupus, "appreciable improvement" is produced; and therefore a further trial of the treatment is justifiable.—*Brit. Med. Jour.*

HYPNAL.[1]—Tersely told, hypnal is the product of combining equal parts of hydrate of chloral and antipyrine. It is an oily liquid of ether odor and chloral taste. Brought out last year in France, by Blainville, it was noted later by Behal and Choay, who found three distinct compounds, one of which was worthless; the others were called monochloral antipyrin and bichloral antipyrin. Reuter, testing one, gave it the dreadful name of mono-tri-chloral-acetyl-dimethyl-phenyl-parazolone, and declared it inert. He, however, used the non-active product. Dr. Bardet, of the Cochin Hospital, made the first medical experiments, and—Heaven bless him!—called it hypnal. He reported twenty-two cases in which one-gram (fifteen-grain) doses acted well as a sedative, soporific, and anodyne, and especially useful in insomnia due to cough or pain.

Frankel—whose paper in the September number of the *Bulletin gén. de Thérapeutique* is the latest from foreign sources—after thirty-three trials, wrote in its favor. Schmidt commends it; so, too, Quintard.

The consensus of opinion among Continental observers is that hypnal is an efficient sedative, soporific, and analgesic; it is more hypnotic and less depressing than chloral; it is not caustic like chloral nor irritant like antipyrin, and it is more readily taken, being more tasteless than either.

On respiration it is much like chloral; on circulation it is less disturbing than chloral. It is antipyretic, and non-irritant by mouth, bowel or skin. It is said to be particularly adapted to children, and to patients with phthisis, lessening fever, pain, insomnia, and unrest. Schmidt found that fifteen grains equalled, in sleeping effect, about nine grains of chloral.

[1] Selections from a paper read before the Medical Society of the County of Kings, by J. B. Mattison.

The dose named by writers noted is fifteen to thirty grains. I have given fifteen to sixty by mouth, double if by bowel, and fifteen hypodermically. It can be given in capsule or solution preferably the former. If the latter, twice the amount of alcohol should be added to the elixir of syrup. By bowel, in gum arabic. Subcutaneously, direct. Convenient formulæ:

℞— Hypnal, ♏ xv.
Alcohol, ♏ lx.
Elixir or syrup, ad ♏ cxl.
M. Sig.: One dose; one-third tumbler water after.

℞— Hypnal, ♏ xxx.
Mucilag. acaciæ., ℥ j.
M. Sig.: One injection.

℞— Hypnal, ♏ xv.
M. Sig.: One dose, hypodermically.

—*Medical Record.*

RESORCIN IN DIPHTHERIA.—ANDEER has recently collected evidence in regard to the usefulness of resorcin as an antiseptic, and especially with reference to its employment in diphtheria.

Recent investigations have shown that this drug is a very active antiseptic, and harmless even in solutions containing 10 per cent. of it. A 10 per cent. solution in glycerine penetrates the tissues rapidly. At the St. Lazare Hospital it has proved serviceable in diphtheria.

It should be used every one or two hours, day and night, locally to the diseased spot. A spray of a 5 per cent. solution should be kept up in the patient's room, and further, two to four teaspoonfuls of a 2 per cent. solution of resorcin in syr. terebinth. should be administered daily.

In diphtheria of the larynx resorcin is of little value.—*Centralblatt f. d. gesammte Therapie*, Heft. 9, 1890.—*Am. Jour. Med. Science.*

Medicine.

THE EFFECTS OF EXTIRPATION OF THE PANCREAS.—DR. BOCCARDI, of Naples, remarking that, though a good many researches have been published by various observers of experiments in which the pancreas has been removed with the result of producing glycosuria, no detailed account of the pathological condition of the tissues and organs had appeared, determined to remedy this defect in our knowledge, and undertook a new research on the subject in the anatomical institute of the Naples University. A preliminary note has just been published by him in the *Riforma Medica*, in which he describes the anatomical appearances in animals after deprivation of the organ in question. All or nearly all were greatly emaciated, notwithstanding plenty of nutritious food after the operation. No boils or other cutaneous affections were found. There were no morbid changes in the salivary glands, nor in the œsophageal and buccal glands, nor were there any modifications in the conditions of renewal of the glandular elements. There was little or no change in the stomach. Brunner's glands were always normal, but Lieberkuhn's glands in many cases presented an increase in the karyokinetic changes of their epithelium; sometimes the epithelium was much enlarged and altered, goblet cells being only discoverable at rare intervals, and the whole had somewhat the appearance of Brunner's glands. There were practically no changes in the œsophagus or in the nervous elements in the coats of the digestive tract. The liver always presented morbid changes, even in a dog which had been operated on only four days before it was killed, and had only just begun to pass sugar in the urine. Most frequently these were fatty degeneration and simple atrophy; sometimes also there was a vacuolar condition of the cellular protoplasm, ending in complete destruction of the cells. The hepatic blood-vessels were frequently distended and filled with blood, and sometimes small hæmorrhagic spots were seen. The spleen, thyroid, and suprarenal capsules did not present any definite morbid changes. In the kidneys only slight and occasional changes were found. There was never any glycogenic infiltration of the epithelium; this condition also was entirely or almost entirely absent in the liver. Herein Dr. Boccardi believes the main distinction lies between natural and artificial diabetes. The cardiac plexus was normal. In six out of twelve cases examined there was atrophic degeneration of the pyramidal tracts of the spinal cord, most marked in the neighborhood of the cervical enlargement. No neuritis or degeneration was found in the splanchnics or pneumogastrics, or in the anterior and posterior roots. In one case only was any morbid change detected in the sciatic nerve. No important change was found in the brain or medulla, or in the muscular system. It would thus seem that various lesions are produced in a short time after the extirpation of the pancreas. The state of the spinal cord would appear to be of special interest in the light of Charcot's recent researches.—*Lancet.*

POINTS TO BE OBSERVED BY ELDERLY MALES.—DR. R. HARRISON offers the following advice to elderly men: 1. To avoid being placed under circumstances when the bladder cannot be emptied at will. Nothing is so bad for a large prostate, though it may be working satisfactorily, as an enforced retention. It is often the first cause of a permanent atony. 2. To avoid checking perspiration by exposure to cold, and thus throwing additional work on the kidneys. In climates like our own, elderly persons should, both in summer and winter, wear flannel next the skin. 3. To be sparing of those wines and spirits (if used at all) exercising a marked diuretic effect either by their quantity or quality; select those which promote digestion without

palpably affecting the urinary organs. A glass of hot gin and water, or a potent dose of sweet spirit of nitre, will not do anything to remove the residual urine behind an enlarged prostate. 4. To be tolerably constant in the quantity of fluids daily consumed. As we grow older our urinary organs become less capable of adapting themselves to extreme variations in excretion. Therefore it is desirable to keep to that average daily consumption of fluids which experience shows to be sufficient and necessary. How often has some festive occasion, where the average quantity of fluid daily consumed has been largely exceeded, led to the over-distention of bladder long hovering between competency and incompetency. The retention thus occasioned by suspending the power of the bladder, has frequently been the first direct step toward establishing a permanent, if not a fatal, condition of atony or paralysis of this organ. 5. It is important that from time to time the reaction of the urine should be noted. When it becomes alkaline or offensive, the use of the catheter may be necessary. When a catheter is required it is most important that its selection should not be left entirely to the instrument-maker. There are other points to be considered beyond the fact that it is to serve as an artificial outlet for the urine from the bladder. An unsuitable catheter in a prostatic case may do much permanent harm. 6. Some regularity as to the time of performing micturition should be inculcated. We recognize the importance of this in securing a regular and healthy action of the bowels, and though the conditions are not precisely analogous, yet a corresponding advantage will be derived from carrying out the same principle in regard to micturition.—*Medical Press and Circular.*

Biology.

ANTAGONISM BETWEEN BACILLI OF ANTHRAX AND "BLUE PUS."—DR. N. BLAGOVESTCHENSKY (*Annales de l'Institut Pasteur*, Tome iv, No. 2, November, 1890), gives an account of some experiments of which the following are the most important results: Simultaneous inoculations into the anterior chamber of the eye of the rabbit with the bacillus pyocyaneus and anthrax bacillus are accompanied by a destruction of the latter, the animal not succumbing to anthrax. Such inoculation does not, however, except in very rare cases, render the animal immune from a later attack of anthrax. If the bacillus pyocyaneus and the anthrax bacillus are not inoculated at the same point the effect of the pyocyaneus bacillus is less marked, and more of the animals die from anthrax. When anthrax spores are introduced along with the blue pus bacillus their development is interfered with. As the result of many experiments the author concludes that the sterilized products of the blue pus bacillus can, as Woodhead and Cartwright Wood pointed out, influence to a certain degree the development of the anthrax bacilli, but that it requires a considerable quantity to effect this result, as where the inoculations were made into the eye simply, the quantity of blue pus products was small and many of the animals succumbed to anthrax. He also shows that even outside an animal the blue pus bacilli exercise a very marked inhibitory action on the development of anthrax bacilli, and he explains the fact that his experiments do not agree with Frendenreich's by the assumption that Frendenreich was working with cultivations of too great an age, as exceedingly young cultivations and very old ones (more than five weeks) appear to have little retarding effect on the development of spores or on the growth of bacilli. From other experiments that he made in moist chambers, he is convinced that the substance that inhibits the action of the bacillus is a volatile substance that readily escapes on exposure to air. He gives full descriptions of sixty-seven most careful experiments, all of which were made under Metchnikoff's guidance and advice.—*Brit. Med. Jour.*

ACTION OF LIVING BLOOD ON BACTERIA.—PROF. BONOME has recorded the results of his researches on the following points: Whether physiological alterations in the blood play any part in modifying its destructive action on bacteria; whether it is possible to produce alterations in the composition of the blood of such a nature that the normal inimical action against bacteria may be altered; and whether it is possible to derive any reliable data that will throw light on the subject of immunity. As a result of his experiments he comes to the conclusion that staphylococci introduced directly into the blood are destroyed in from ten to twenty-five minutes; more rapidly in the blood of young rabbits than in older animals of the same species. He then, by injecting the poison obtained from the pus of an old empyema or a chronic abscess in small quantities into healthy rabbits, proved that the bacteria-destroying activity of the blood is increased, the organisms used being staphylococcus aureus, albus and citreus. He holds, however, that the introduction of such poison does not appear to exert any influence upon the similar activity of the fixed tissues. Poison from acute pus obtained in a similar manner appears to exert not the slightest influence on the destructive action of the blood; while, owing to its effect upon the tissue-elements, it diminishes their power of destroying such organisms as the staphylococci above mentioned. Similar poison from pyogenic staphylococcus cultures does not increase this destructive power of the blood against the above-mentioned organisms, and any immunity that is produced depends not on the rapidity and certainty with which the blood destroys the organisms introduced into its stream, but

rather upon a greater resistance which the tissue elements exert against the bacteria poison, when they have become accustomed to the action of the poison by remaining in contact with the metabolic products of the same bacteria. He also gives experiments to show that water injected into the veins can diminish this destructive activity of the blood to a certain extent, but never completely; for, although the animals so injected and control animals died about the same time, those in which water had been injected usually showed small purulent deposits in the kidneys and myocardium, and more or less fatty degeneration of the epithelium of the kidneys, so that he considers that, in addition to this slight diminution in the destructive activity of the blood, there is some alteration of the protoplasm of the cells, probably due to the absence of salts and the cutting off of the full oxygen supply by the presence of water, by which their resistance is considerably diminished in certain areas, and owing to which they are more readily attacked by the injected staphylococci.—*Brit. Med. Jour.*

Bacteriology.

EFFECT OF HIGH TEMPERATURE ON THE TYPHOID BACILLUS.—DR. JANOWSKI (*Centralbl. f. Bakt. u. Parasitenk.*, Bd. viii, Nos. 14 and 15, 1890) in the course of his experiments on the action of high temperature on the typhoid bacillus, says that, with the exception of Sternberg's experiments, there are none that can be taken as entirely satisfactory, the results being vitiated by more or less imperfect methods. By the use, however, of a double-walled vessel, the inner chamber containing water, the outer a layer of hot air, and the outer wall surrounded by felt, except where the Bunsen is applied to heat the air, he obtained a vessel in which the radiation and conduction were so equalized that the water remained at the same temperature throughout for a considerable length of time. By placing test tubes within this chamber, and heating the gelatine contained in them to a required height before introducing the material to be tested, he was able to get extremely satisfactory results. Using typhoid bacilli grown for three days on gelatine, or from four to five days on potatoes (so that spores might be present), he exposed these to various temperatures, ranging from 40° up to 80° C., for periods of from five to ten minutes, and then made "tube-plate" cultivations according to Esmarch's method. Down to 55° C., when exposed for ten minutes, the cultivations were always sterile—that is, the bacilli had been destroyed, but 55° C. for five minutes was not sufficient to prevent their germination when again placed under favorable conditions. In only one case, after an exposure to 56° C. for ten minutes, were three colonies developed. In all other cases complete destruction of the typhoid bacillus was obtained at this point, and he therefore looks upon 56° C. as the temperature fatal to its development. In this, his experiments agree with Sternberg's. As regards low temperatures, from a large number of experiments that he made on typhoid bacilli, both by submitting these to natural and artificial cold, in broth, and dry on threads, he came to the conclusion that, although the results vary somewhat in different cases, according to the conditions in which the bacillus exists during the period that it is exposed to the cold, the extreme degree of cold, especially when continued for some time, or where frequently repeated, has a markedly injurious effect upon the vitality of the typhoid bacillus, a temperature of —14° C. being sufficient completely to destroy the bacillus in a fluid medium. In the dry condition this does not always hold good.—*Brit. Med. Jour.*

Otology.

MICROBES IN OTITIS MEDIA.—DRS. A. MAGGIORA and G. GRADENIGO (*Centralbl. für Bakt. u. Parasitenk.*, Band viii, No. 19, October 30, 1890), mention the results of researches of previous authors; and then give their own methods of examination. They find that by covering and plugging the end of a silver sterilized Eustachian catheter, it may be passed into the Eustachian tube, without becoming contaminated by the nasal mucus. The plug is withdrawn by means of a thread, and a celluloid bougie—which had been sterilized by repeated energetic rubbing with sterilized cotton wool—is introduced for at least 1 centimetre into the tube. The bougie is withdrawn, and then placed in tubes containing gelatine and agar, and plate cultivations are prepared in the ordinary manner. In thirteen cases of chronic middle ear catarrhal inflammation with thickened membrane, fifteen ears were examined with the following results: Micrococcus candicans was found in six out of the fifteen cultivations; saccharomyces roseus in four; saccharomyces ellipsoideus, bacillus subtilis, micrococcus cereus albus, penicillium glaucum, and diplococcus citreus conglomeratus in two each; sarcina lutea, micrococcus citreus (II), bacillus albus, micrococcus cereus flavus, sarcina alba, merismopedia aurantiaca, and micrococcus opalescens in one each. In one case nothing was found, and in one non-pathogenic organisms that liquefied gelatine were met with. The authors conclude that in the later chronic or dry stages of middle ear inflammation there is no evidence of the presence of pathogenic organisms, as all those mentioned above may be looked upon as entirely innocuous. As regards the earlier stages, although there is nothing proved as yet, they consider it is quite possible that specific infective organisms may play some part, as their experiments are not at all inconsistent with such a condition.—*Brit. Med. Jour.*

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THE TREATMENT OF ACUTE ANÆMIA.

So plainly indicated a procedure as transfusion of blood would not be neglected were it not for the dangers which attend its execution. These dangers have again and again been illustrated in the practice of every advocate of direct transfusion, and the most enthusiastic of them have been compelled to abandon the method and substitute defibrinated blood or the injection or infusion of artificial solutions. So dramatic a procedure as direct transfusion of blood appeals to the common mind, and it is not wonderful that it has been urged and even practiced not only for acute traumatic anæmia, but for pernicious anæmia, for chlorosis, for the anæmia of the chronic infectious diseases, and for sepsis and old age.

Death in acute anæmia is due to an anæmia of the brain. This, in turn, may be the result either of failure of the heart to propel the properly oxygenated and nutrient blood to the brain centres, or to the deficient quality of the fluid still properly supplied. The heart itself is able to beat for some time after its nutrition has been wholly shut off. The failure of this organ in sudden loss of blood is due to the inadequate filling of its cavities, and the resulting mechanical incompetency of the motor apparatus of the heart. Thus we conceive the possibility of two forms of anæmia of the brain, the one quantitative, the other qualitative.

The blood and the lymph are found in the body in nearly equal proportions. Whenever there is a deficiency in one of these fluids that deficiency is supplied from the other. The rapidity with which the loss of a small quantity of blood is restored has often been noticed. Even in twenty minutes after the loss of 10 per centum of the entire bulk of the blood, the arterial tension will have in this way nearly regained itself. Not so the quality. MICULICZ (1890) has shown by clinical experiment and observation that in the otherwise healthy the hæmoglobin, and presumably the corpuscles, are restored in a loss of 5 per centum of the blood, only after five days. An additional five days is required to repair the loss of each further twentieth. In his experiments on animals, ROSENBURG[1] found that a rapid loss of two-fifths the total quantity of the blood was usually borne; the loss of more than two-fifths and less than one-half was sometimes fatal, while the loss of more than one-half the blood was invariably followed by death. He also found that the subcutaneous infusion of a 0.6 per cent. salt solution temporarily resuscitated animals that had suffered a loss of more than one-half the total quantity of their blood, but that they invariably perished subsequently in spite of the infusion. This is certainly all very significant. HUNTER[2] has shown us the fate of intra-peritoneal injections of blood. Following such an injection the intravascular blood becomes rapidly concentrated from the effusion of serum into the injected blood, this is some hours later followed by the restoration of the circulating blood to its normal quantity and concentration, and still later by the slow migrations into the circulation of the injected blood. Its presence may be noticed for several days by the increased number of corpuscles.

The first indications, then, in severe acute anæmia is to fill the blood-vessels in the three vital parts, the brain, the heart and the lungs, by maintaining the most favorable position of the body of the patient. The same result may be attained more tardily, though more conveniently, by temporarily shutting off from the circulation the larger extremities and the abdomen by means of the elastic bandage. These two procedures have been termed autotransfusion.

When the anæmia is so excessive that autotransfusion is inadequate to restore the mechanical necessities of the circulation the anæmia is fatal, but autotransfusion may temporarily re-

[1] Virchow's Archiv, Bd. cxii.
[2] Journal of Anatomy, 1890.

store the functions of the heart and fail to meet the needs of life. Then there is but one source of relief. This is to be found in the lymph. The rapidity with which the blood pressure is raised is remarkable. It is usually complete at the end of an hour or two. Therefore, when the symptoms of a low blood pressure remain after this time and the mechanical necessities of the circulation are unmet, washing out the remaining lymph by means of a subcutaneous infusion of a neutral salt solution meets the indication of the case. The amount of salt solution as well as its concentration need not be very exact nor need the temperature to be so well regulated as in infusion directly into a vein, for the tissues act as a sort of a ballast and reduce the infusion to a proper concentration and temperature. They retain also any excess in the quantity of the infusion until the blood pressure is reduced again by excretion.

After the mechanical needs of the circulation are met the quality of the blood may be so impaired that a vital equilibrium cannot be attained, and the patient sinks into a state of rapid dissolution. For such severe anæmias the infusion of the salt solution should be followed by the injection of blood or by the transfusion of defibrinated blood.

THE ETIOLOGY OF TUBERCULOSIS.

Some important researches on this subject have been published in the *Medical Record* by DR. H. P. LOOMIS, of New York. Starting from the well-known facts that tubercular deposits are sometimes found in the bronchial glands of persons who give no evidences of tuberculosis of other organs, and that, in some cases of pulmonary consumption, tubercles of apparently older date in the bronchial glands seem to have been the starting point of the infection, he undertook to determine in how large a proportion of persons who were free from visceral tuberculosis the bronchial glands contained the infecting element. For this purpose he tested the bronchial glands of forty-eight persons, dying from accident or acute disease, by triturating the glands, with due precautions against contamination, in distilled water, and injecting the mixture into the pleuræ of rabbits. The rabbits were killed after the lapse of a sufficient time, and, in case of their presenting the appearances of tuberculosis, the nature of the lesions was still further tested by inoculating other rabbits from them in the same manner. Only in case of the success of inoculations of this second series was it assumed that the glands used for the first inoculation were tuberculous. In none of the cases used for inoculation were tubercles found in any other organs than the bronchial glands. In several of them the macroscopic appearances of glandular tubercles were found; some of these, however, gave negative results by inoculation. In a few, the tubercle bacillus was found in the tissue by microscopical examination.

Eighteen of the rabbits inoculated died too soon to determine as to the success of the inoculation. Of the remaining thirty, eight developed the lesions of tuberculosis, the character of which was confirmed by the success of inoculations on other rabbits. Three others caused lesions so strongly resembling tuberculosis that secondary inoculation was required to determine their non-tubercular nature. In five of the successful cases, death occurred suddenly from accident, while the persons were in apparent health.

The material for the experiments was mostly taken from hospital patients, and the author suggests that they are probably more exposed to infection than persons living in more favorable hygienic surroundings.

Two of the cases were of special interest. One was that of a prize-fighter, who had come to New York to give exhibitions, and died of pneumonia on the seventh day of the disease. At the autopsy, all of the organs were found normal, except the lower lobe of the left lung, which presented the lesions of the second stage of lobar pneumonia, and an enlarged bronchial gland. The other was a woman 70 years of age, who had been, for more than a year, a helper in the wards of Bellevue Hospital, where there were many tuberculous patients, and had always seemed to enjoy good health apart from the infirmity incident to her age. She died suddenly, from apoplexy, and at the post-mortem examination the lungs were found entirely normal, with the exception of abundant pigment. One bronchial gland was much enlarged. In both cases the animals inoculated developed the lesions of tuberculosis, in the latter, of a very virulent character.

In three of the cases giving negative results, calcareous nodules, and in two others cheesy

masses, presenting to the naked-eye appearances of tubercle, were found in bronchial glands. The failure of the inoculation experiments in these cases was thought to show the death of the bacilli, in case they had ever been present.

These experiments seem to show that it is possible for the infection of tubercle to remain latent in the bronchial glands for an indefinite length of time, and, on the other hand, probable that, after a long period of latency, it may enter into the circulation and infect vital organs. The thought that any of us may be carrying around in our bodies the germs of such a disease is not exactly a cheering one, although it is not probable that the knowledge adds anything to the risk in a given case, and it is open to every one to hope that even if such is the case, he may be one of the lucky ones in whom it is destined to go no farther.

BERI-BERI IN THE GRAND BANKS FISHING FLEET.

Dr. W. S. Birge, of Provincetown, Mass., has written to the *Boston Medical and Surgical Journal* a brief note regarding the occurence, during the past two years, of cases of beri-beri among the fishermen of the fleet sailing from his town to the Grand Banks. In the Autumn of 1889, he was called upon to attend seven cases, coming from two different vessels, which have the interest of rarity in that these cases originated in a quarter of the globe where the disease has not been supposed to exist. In October, 1890, also, as many as twenty cases have been landed at Provincetown from vessels arriving from the Grand Banks, eleven cases occurring on one vessel, out of a crew of thirteen. Two of these cases died within twenty-eight hours after having been brought ashore. Some of the cases have been received at the United States Marine-Hospital at Chelsea, while others were treated at their homes. The symptomatology is described as quite uniform in this series of cases, the prominent signs being general œdema, shortness of breath with precordial distress, numbness of the lower limbs, shuffling gait with decided inability to lift the leg at the knee. Only one case was confined to his bed, hydrothorax having supervened upon the general œdema. This man died, five days after his return home, with the symptoms of heart failure and pulmonary œdema. The other cases, after a period of two to six weeks, recovered. It was reported that a case had died on the voyage home, the symptoms of which were described as similar to the one above referred to as fatal. Albuminuria was present in only one case and there was some doubt if that was properly attributable to this disease. The spleen was greatly enlarged in three cases and the bowels in all were constipated, but probably not more so than might be expected among men who go fishing to the Grand Banks, a condition that no doubt results from the kind of food furnished on such voyages and a very general neglect among the fishermen to attend the functions of their bowels. The digestive organs seemed to be but little affected by the disease, the appetite being fairly good in nearly all the cases; one case only presented the symptoms of nausea and vomiting. The temperature was normal in all the cases that subsequently recovered. The knee-jerk was in two cases entirely lost, and in all diminished. There was, as reported by the patients themselves prodromic period marked by depression, muscular weakness and indisposition to work, also, by an œdematous condition of the areolar tissue of the anterior aspect of the legs; some cases had severe cramps and pains of a neuralgic character. The apparent cause for all these cases was defective food-supply. In the case of two vessels it was found out that they had been poorly fitted for the voyage; the two previous years had not been prosperous ones to their owners so that the outfit was cut down in every possible way; the salt beef was of a poorer quality than usual and the supply of fresh vegetables was very meagre. The catch of fish was at irregular intervals, so that the possession of this article of diet, in a fresh state, was not a frequent occurrence. The majority of the cases, in which the disease occurred, were strong, able-bodied men, in whom there were no recognizable traces of constitutional impairment. The treatment was almost wholly limited to a dietary management in which the chief ingredients were the coarsely prepared grains as oat meal and wheaten meal, along with a liberal allowance of fresh beef, diuretics and hydrogogue cathartics were used in some cases where the œdema was most marked.

EDITORIAL NOTES.

THE SECRETARY OF THE SECTION OF SURGERY AND ANATOMY of the American Medical Association is Dr. W. E. B. Davis, of Birmingham, Ala., not Dr. John B. Deaver, of Philadelphia, as erroneously announced.

ELECTRO-THERAPEUTIC ASSOCIATION. — A convention of American Physicians interested in electro-therapeutics has been called to meet at the Academy of Medicine, No. 17 West 43d Street, New York, on the 22d inst., at 11 A.M., for the purpose of organizing an American Electro-therapeutical Association. A general attendence of those interested is invited.

THE OHIO MEDICAL UNIVERSITY.—This is the name of a new institution that has recently been incorporated in Ohio, and which is to be located at Columbus, the thriving Capital of that State. The new University will consist in a Department of Medicine and Surgery, a Department each of Dentistry, Pharmacy, Midwifery, and a Training School for Nurses; and will be supplemented by a large new hospital, the gift of a number of the wealthy, philanthropic protestants of that city, and which is said, will cost about $200,000, when completed.

The incorporators of this new school are: Mr. George M. Peters, a prominent millionaire; Mr. William M. Mutchmore, an influential druggist; Dr. J. F. Baldwin, Editor of the *Columbus Medical Journal;* Dr. John W. Wright, Oculist for the Columbus, Hocking Valley & Toledo, and B. & O. Railroads; Dr. R. Harvey Reed, Treasurer of the National Association of Railway Surgeons, Mansfield, O.; Dr. A. E. Evans, Surgeon of the C. C. C. & St. L. R. R., Columbus; Dr. A. F. Enninger, a prominent dentist of Columbus, and Dr. S. L. McCurdy, Surgeon of the Pa. R. R., Dennison, O. One of the prominent features of the new University will be the abandoning of the old-fashioned system of instruction by lectures, and adopting, instead, the "new plan" of "class teaching" similar to the methods now employed in the literary colleges. A graded course of three years of nine months each is to be adopted, which will include daily examinations and grading of the students, thus doing away with the necessity of a final examination.

This new method of teaching medicine, and allied sciences, has been agitated for years in a majority of the leading medical journals of this country and Europe, but we believe this is the first school to organize on the new plan. It is expected to have every thing in readiness to open the new University about the first of October next.

A LARGE PRIZE.—The Academy of Medicine of Turin has just offered a prize of 18,000 francs for the best work on the "Nature and Prophylaxis of the Infectious Diseases of Man." Essays must be in Latin, French or Italian.

DR. W. W. DAWSON, the eminent surgeon of Cincinnati, ex-President of the American Medical Association, recently expressed a thought in a most terse and pointed way which is worthy of preservation. He said: "Anæsthetics are as essential to surgery as the knife. Both are dangerous, but neither can be ruled out in consequence of their danger."—*Ex.*

LADY DUFFERIN ZENANA HOSPITAL, CALCUTTA.—The building of the Lady Dufferin Zenana Hospital at Calcutta is now making satisfactory progress. The main hospital of two stories will contain thirty-six beds, there being separate wards for Hindus and Mohammedans. A ward will also be set apart for children, and a sum of Rs. 25,000 has already been subscribed for its support. Synd Mehdi Hussein Khan, of Patna, recently gave Rs. 1,000 in aid of the building fund of the hospital, but at least Rs. 20,000 is still required to complete the work.

A REPORT recently issued by the Pennsylvania Board of Health shows that there are 8,318 registered medical practitioners in that State, of whom 641 are of foreign birth, every nation except Spain being represented in the list.

ACCORDING to an American missionary, Bombay is a promising field for dentists, especially if they be of his own nationality. There is, he says, only one good dentist in the city, and he charges $7.50 for drawing a tooth.

ONEROUS RESTRICTIONS ON MEDICAL PRACTICE IN CERTAIN STATES.—A recent law of New Jersey prohibits physicians from other States practicing their profession within that State's limits. A large number of New York medical men have thus been cut off from their fields of practice at the various sea-side resorts so much frequented

by the citizens of New York during the summer season. It is reported that the Long Branch local physicians were the originators of this piece of legislation. In some other States laws have, within the past few years, been adopted which seem to place somewhat odious restrictions upon the practice of even the most worthy and eminent members of the profession. It is stated that in New York State a physician who was regularly licensed to practice in Brooklyn was arrested in one of the towns of the northern part of the State for giving medical advice to some one whom he met while traveling, when his name was not duly registered with the county officers of the particular county through which he was then journeying.

MEDICAL ITEMS.

THE LEPROSY COMMISSION IN INDIA.—From Calcutta it is reported that the Leprosy Commission has examined many cases at Hyderabad, and it is stated that a few of them were declared to be unequivocal examples of leprosy. It is understood that the commission, after spending six months inspecting cases in the plains, will pass six months at Simla carrying out experiments in connection with the cultivation of the leprosy bacillus.

OWING to the cholera scare in Egypt, the Khedive has by special decree granted a free pardon to all prisoners undergoing sentences not exceeding three months. This means the liberation of about two thousand prisoners throughout Egypt. More than 350 prisoners have already been set at liberty in Cairo.

THE SENATE of Calcutta University has adopted a resolution to make the University a teaching as well as an examining body by adding certain professorships. The scheme has been forwarded to the Government for its favorable consideration.

BY decree dated December 4, Dr. Giulio Bizzozzero, Professor of General Pathology in the University of Turin, and Dr. Ottavio Morisani, Professor of Obstetrics in the University of Naples, were named Senators of the Kingdom of Italy.

PROFESSOR SONNENBURG has begun the surgical treatment of pulmonary cavities in the Section for Tuberculosis in the Moabit Hospital at Berlin, and has already operated on four patients in the presence of Professor Koch. All the cases are said to be doing well.

IN order that the changes produced in tuberculous tissues by Koch's fluid may be determined as accurately as possible, the directors of the Charité Hospital at Berlin have given orders that the bodies of any patients who may die after having been treated by the new method shall be examined as soon after death as the law permits. Koch found such early examinations a great help in his investigations on cholera.

DR. A. F. HOLT, Surgeon-General of Massachusetts, died December 28, in Martin, Fla. Dr. Holt resided at Cambridge, Mass., and left for the South about a month ago for the benefit of his health, he being a sufferer from Bright's disease. He was born in Lyndeborough, N. H., December 16, 1838. He obtained his medical education at the Harvard Medical School and University of Vermont, and served with distinction during the war as hospital surgeon. In January, 1884, he was appointed Surgeon-General of Massachusetts.

CHOLERA IN JAPAN.—The epidemic of cholera which is at present raging in Japan is one of extraordinary severity. It is said to have followed an outbreak of influenza which commenced in February last, and reached its climax in April, dying away towards the beginning of summer. As soon as the influenza disappeared, however, cholera seems to have been imported from China, and, as the *Sei-i-Kwai Medical Journal*, of October 25, says, "furiously invaded with tremendous rapidity." The terrible nature of the visitation may be judged from the fact that up to October 2, 33,863 persons had been attacked, of whom 22,560 died. Owing to the vigorous efforts of the sanitary authorities the epidemic is now, according to our contemporary, "rather rapidly fading away."

THE surgical treatment of peritonitis by drainage does not seem to have found so much favor in France as it has in England or in Germany, and the cases which are recorded are not very numerous.

MINKOWSKI'S discovery that extirpation of the pancreas produces glycosuria has suggested to clinical observers the possibility of diseases of the pancreas in man as a cause of diabetes.

TOPICS OF THE WEEK.

PERFECTED OBSTETRICS.

Dr. Alfred L. Carroll, discussing "the influence of a more perfected obstetric science on the biological and social conditions of the race," has some very pertinent observations on the number of cases of "still-births" and the effect of the present conditions of obstetrical science. For instance, he says:

It is to be regretted that the registration of vital statistics is so imperfect in this country as to preclude any attempt to classify by months the mortality under one year; but the data, such as they are, indicate that, in the United States generally, about 25 per cent. of live-born children die during the first twelve-month.

It would not be unreasonable, perhaps, to assume that at least half of the deaths under one month are attributable to accidents in parturition, and that a large residuum of those occurring in the first year has a similar origin; but the admirable reports of Farr may enable us to go a step farther in the field of inference. The death-rate under one year per 10,000 births in England, for the three years ending with 1875, was 1,527. Of these 95 were ascribed to the acute zymoses, 29 to "teething," 171 to diarrhœa, 263 to "lung diseases," 98 to tuberculosis, 128 to prematurity, 267 to "atrophy," 14 to "suffocation," and 251 to convulsions, leaving 211 "not stated." The deaths from prematurity, "atrophy," and convulsions constitute nearly half of the mortality, all of the former and a considerable proportion of the latter two being referable to the time or act of parturition, and some of the pulmonary disorders having their predisposition, if not their origin, in atelectasis at birth. In Farr's March of an English Generation, based on the labor of over thirty years, he computes that the average deaths per million under one year will be 149,493, of which 30,637 will be from diseases of the nervous system, and 21,995 from respiratory maladies. West, taking a wider view of "nervous" disorders, ascribes to these 30.5 per cent. of all the deaths under one year, and to convulsions alone 73.3 per cent. of the "nervous system" mortality—equivalent to 33,421 to the million births. Nor is he any less cogent in his reasoning than in his statistics. The conclusions which he draws respecting the social conditions have the sound of true earnestness which is refreshing. Under this head he says: "As regards social conditions, I have little to say beyond expressing the belief that misery rather than midwifery is responsible for most of the degradation which blots our vaunted civilization. It may be that in some cases such misery is the outcome of physical disability dating from birth or parturition, but in more instances it is the result of acquired vicious habits. Social statistics show that the numbers of murders, suicides, and other kinds of crime bear about the same proportion to population every year; but of the etiology of criminality nothing can be positively affirmed. Even those who dogmatically ascribe all the ill-doings of the world to alcohol have still to find some antecedent factor, and to explain why the vast majority of consumers of alcoholic beverages refrain from crime. Inebriety is often the excitant, but the predisposition must be sought behind it. "*In vino veritas*" has a wider philosophical meaning than they who quote it ordinarily wot of.

The vexed question of heredity (not so much of disease as of proclivity to disease) has little relation to obstetrics, save as it has led some enthusiasts to imagine an impossible prophylaxis by forbidding the marriage of physically, mentally, or morally unhealthy persons, and in this way diminishing obstetric practice, except in illegimate births; and it is doubtful if anything but a destructively retrogressive midwifery or an increasing prevalence of oöphorectomy can materially reduce hereditary morbidity, since delicate, and especially consumptive, women seem to be more apt to conceive and less likely to miscarry than their more robust sisters. As a "glittering generality" it may be asserted that every obstetric advance which saves mothers from invalidism and children from incapacity for future effort must promote the social condition of the race, but politico-economic rules and the inexorable operation of natural laws will probably always overshadow in this respect the influence of medical science, or even of Congressional legislation.—*Times and Register.*

THE CHOLERA AND THE MECCA PILGRIMS.

A correspondent, writing to a local paper from Jeddah, says: "The epidemic is completely finished. On October 17, thirty days after the occurrence of the last case of cholera, Dr. Vaume allowed free pratique. Almost all the pilgrims have left. I say nearly all, because there always remain a thousand or so of beggars who, having nothing but starvation before them in their own countries, prefer dying in the sacred land, as being so much nearer to the gates of Paradise. Now is the time to make up the accounts of the pilgrimage—to estimate the number of those who have died. In my estimation—and I have formed a very modest one—the deficit among the returning pilgrims must be put down at 35 per cent.! In ordinary years, when there is no epidemic, about 20 per cent. die; this year the cholera has added 15 per cent. to the total number of victims. This estimation of 20 per cent. in ordinary years is by no means too high when one considers the great number of old people taking part in the pilgrimage, combined with the fact that the journey from Mecca to Yambo, *via* Madeira, is an excessively trying one, and that all the people who perform it have passed one day at Arafat and three at Monna with heads bare, exposed to an ardent sun. They commence the return journey, consequently, in a worn-out state, and, once started, caravans do not stop for the treatment of sick, and laggards soon die of thirst, or are murdered by the Bedouins. The poor people must keep perpetually moving on; those who cannot keep up are abandoned, and then the vultures take charge of public salubrity. Although one may have seen many such things during a long existence, I doubt if any one could form an idea of the state of affairs during an epidemic at the time of the pilgrimage without being an eye-witness thereof. Thousands of men arrive on camels each morning at the gate of the town; the number of empty saddles is seldom less than 10 per cent. A man dismounts, staggers a few steps,

writhes; his limbs contract, and lo! in an hour he is dead. Another drags himself towards the walls so as to die in the shade; but soon appears a citizen who seizes the unfortunate wretch by the foot, and drags him to a distance; were he to die close to the town the smell would be objectionable! As soon as a pilgrim falls sick the passers-by precipitate themselves upon him and relieve him of the belt wherein he carries his little stock of cash, but no one dreams of attempting to afford him relief. It is a disgrace to humanity." This we believe to be substantially correct. It is time that civilized Europe should take steps to put a stop to these atrocities, and at the same time prevent the spread of cholera.—*Brit. Med. Jour.*

THE DISCUSSION OF MEDICAL SUBJECTS IN THE NEWSPAPER PRESS.

Some medical men, and even some newspapers, seem to be somewhat disturbed by our remarks on the contributions to newspapers on the Koch treatment of tuberculosis. We are not unreasonable or unpractical. The etiquette of the profession has good grounds for its existence in reason and in the nature of things. And any departure from it is sure to be followed sooner or later, and generally quickly, by consequences bad for the person violating the rules of professional custom, bad for others who are led to follow an evil example, and bad for the public, who are hopelessly misled by vague newspaper statements of disease and its remedies. In some of our colonies men of high qualifications and good professional history have taken to the most unblushing advertisement of themselves as prodigies of skill for curing all sorts of disorders. In connection with this matter of Koch an Austrian physician is announced in the newspapers as curing consumption by "Dr. Brown-Séquard's fluid" more effectually than Koch. The following is taken from a daily provincial contemporary as a prominent paragraph, and corresponds with an advertisement to a similar effect in another issue of the paper:

"DR. KOCH'S TREATMENT FOR TUBERCULOSIS.—Mr. ——, one of the medical staff of the —— Hospital, yesterday received a supply of Dr. Koch's fluid, sufficient, we understand, to serve for upwards of five hundred injections. There will be a demonstration of the application of the treatment at the —— Hospital on Thursday before a medical audience."

There can be no defence of such communications to newspapers. If the design was to communicate with the profession, the post or the medical journals would have been the proper medium. The most unseemly uses have been made of Dr. Koch's kindness in supplying his fluid. Such things are not only a breach of professional etiquette and tradition, but in the long run the public suffers and suffers most. It is misled. Statements that need checking and correction are put forth with confidence. Every day is showing more clearly what an injustice has been done to Koch by the forced premature disclosure of his great discovery—for great it is, whatever may be the limitations of it. But this is nothing compared with the cruel disappointment created for those who are led to expect more of the discovery than he has ever promised or could promise. This is the kind of considerations which underlie the etiquette of the profession. We repeat, we are not unreasonable. The magnitude of Koch's expressed hopes may perhaps excuse some haste and premature publicity in newspapers. But they should not be abetted and encouraged by members of a profession who cannot with impunity prescribe through newspapers or adopt them as media for the discussion of the profoundest questions in pathology and therapeutics.—*Lancet.*

ITALIAN HONORS TO GERMAN PHYSICIANS.

An Italian correspondent writes: "At the meeting of the Accademia Medica di Roma on the 7th ult., the President, Professor Guido Baccelli, forwarded to Dr. Koch the following telegram, which had been voted with acclamation: 'The Royal Medical Academy of Rome sends to its illustrious Honorary Fellow, Robert Koch, its tribute of applause and admiration for his profoundly scientific and humanitarian discovery.' At the same meeting the Royal Medical Academy, again at the instance of its President, seconded by the acclamation of the assembled associates, set aside *ad hoc* its formal regulations to nominate Rudolf Virchow a 'Socio d'Onore' (Honorary Fellow), and resolved to contribute 500 lire (£20) to the fund for the gold medal which is to be struck for this 'maestro dei maestri' (master of masters) on the approaching completion of his seventieth year."

LITERARY INTELLIGENCE.

It is announced that Professor Mathias Duval will for the future be associated with Dr. G. Pouchet in the editorship of the *Journal de l'Anatomie et de la Physiologie Normales.* This well-known periodical, which was founded by Professor C. Robin, has now entered on its twenty-seventh year, quite a respectable antiquity for a journal of so high—not to say dry—a class which appeals to an audience which must in the nature of things be "few," however "meet."—The *Revue Philosophique*, which now enters on its sixteenth year, is remarkable as being probably the only periodical in the world which can boast of a Minister of Cabinet rank as its editor. M. Ribot, however, is something more than a mere Minister for Foreign Affairs; he is Professor in the Collége de France, and a philosopher of credit and renown, not only among politicians, but among philosophers. A noteworthy feature of the *Revue Philosophique* is the prominence given to such subjects as the nervous system, mental pathology, anthropology, etc. Both the periodicals just mentioned are published by Félix Alcan, who, it may be added, also plays the part of Lucina to the *Revue de Médecine* and the *Revue de Chirurgie.*—On January 1, 1891, will appear the first number of a new journal devoted to stammering and speech affections generally. It is to be entitled *Medicinisch-pädagogische Monatsschrift für die Gesammte Sprachheilkunde*, and will be edited by Herr Albert Gutzmann, and Dr. Hermann Gutzmann, of Berlin.—It is announced that in January, 1891, a new series of the *Journal of Laryngology* will be commenced. Dr. John Macintyre, of Glasgow, will be associated with Dr. Norris Wolfenden in the editorship, and these gentlemen will have "the active aid and coöperation of Drs. Dundas Grant, Barclay J. Baron, Hunter Mackenzie, and Sir Morell Mackenzie" in their labors. The publisher is Mr. F. A. Davis, of Berners Street, W., and Philadelphia.—*Brit. Med. Journ.*

FOREIGN CORRESPONDENCE.

LETTER FROM BERLIN.

(FROM OUR OWN CORRESPONDENT.)

To the Editor:—I have been carefully watching the experiments now being made with Prof. Koch's "Heilmittel gegen Tuberculose" which have drawn so many physicians to Berlin from all parts of the globe, not among the least of these from America. I will endeavor to give you an idea of the action of the lymph and also by a few cases which I have selected from a number as being typical, give you an idea as to what results have been arrived at up to the present time. As you know, according to Prof. Koch's paper in the *Deutsche Med. Wochenschrift* of the 13th of November a dose of 0.25 ccm. of the lymph will cause considerable febrile reaction and symptoms in a healthy person, and a dose of 0.01 ccm. will in some persons produce a slight reaction. In tubercular patients the reaction is as follows: From four to six hours after an injection of a full dose (from 0.0005 to 0.01 ccm. according to age and condition of patient, and inversely to the extent of the tubercular infection) the temperature begins to rise, often accompanied by a chill, reaching its maximum about the tenth or twelfth hour. The temperature usually reaching from 39° C. (102.2° F.) to 40° C. (104° F.), but in some cases it reaches as high as 41° C. (105.8° F.). The height to which the temperature rises seems to be proportional to the extent of the tubercular process, hence great care must be taken regarding the dose when the lungs are involved. In all cases of lupus and other external tubercular affections, the lungs should be carefully examined physically, and the sputum for bacilli. With the rising temperature there is often vomiting and considerable depression, headache, and sometimes unconsciousness. The pulse ranges from 120 to 140, and sometimes as high as 180. After reaching its maximum the fever gradually falls, and in from twenty-four to thirty-six hours that which was induced by the injection disappears entirely. The fever curve with its attendant symptoms strikingly resemble an acute sepsis.

In some cases an eruption appears over the body much like that of scarlatina; this, however, disappears with the fever.

The local reaction is the more striking and remarkable, especially in external tubercular affections, where it can be best studied. Seemingly, and as far as has yet been proven in the great number of patients experimented upon, it only appears in the pathological processes, due to the tubercle bacillus, attacking old cicatrices where long before tubercular glands had been removed, often demonstrating the presence of lupus nodules where they had not previously been observed or suspected as showing where a tubercular bone process lay latent.

Lupus.—As the temperature rises the lupus patch becomes swollen. In all the cases which I have seen tubercular glands and the like, if present, also become swollen and painful. The lupus takes on a red color which deepens with the rising temperature until it is of an erysipelatous hue. From the nodules rays of redness go out into the surrounding tissue, and about the entire patch a light line of anæmic skin forms a line of demarkation between the healthy and diseased tissue. On the surface of the lupus small vesicles form, from which a light colored serum exudes, at times tinged with blood; this forms a thin crust which in from twelve to thirty-eight hours begins to scale off, leaving under them what seems to be a fine delicate skin. This reaction takes place after each injection, but, as a rule, to a less degree each time, though the dose be increased. One case of lupus of the nose and face which I have in mind was still reacting after the fifteenth dose. In this patient the diseased patch looked much improved though not yet free from its pathological condition. From its looks I think it may possibly be well before very long. A great number of similar cases may be seen in the wards.

Coxitis.—The local reaction manifests itself in a swelling about the affected joint which becomes exceedingly painful to movement or to the touch.

The following two cases of coxitis have ceased to react to ordinary doses of the lymph:

Case 1.—Willie Z., æt. 3 years, coxitis (left). Reaction set in on an injection of 0.0001 ccm. (or 0.1 ccm. of the 1 per cent. solution which is used). Reaction slight on tenth dose of 0.005 ccm.; did not react on eleventh dose of 0.005 ccm., nor on twelfth dose of 0.01 ccm. At the time of the first injection (November 6) the joint was very painful both to palpation and to movement, now the child voluntarily moves his limb and would stand upon it were it not in a perverse position (adducted and flexed).

Case 2.—Osker S., æt. 3 years, coxitis (right). Did not react after last four doses. Though the joint is not painful on movement it is still painful to touch and deep fluctuation can be detected.

How much of the improvement in the above two cases is due to the remedy and how much to the quiet rest in bed is a question, perhaps, not easily answered.

Case 3.—C. S., æt. 41 years, tuberculosis of pharynx and of larynx. The patient entered the hospital with large ragged ulcers on both pharynx and larynx, which were at first thought to be syphilitic in their nature, but, on the injection of 0.002 ccm. of the lymph, he reacted both locally and generally, so that the diagnosis of tubercular ulcers was arrived at.

I mention this case more to show what an aid

to diagnosis the lymph may prove to be. Perhaps its main curative effect may be in this early diagnosis, though I must say that it seems to have a curative effect in itself, especially in lupus. Prof. von Bergmann, Prof. Israel, Prof. Gerhardt and many other eminent men in the profession seem to expect great curative results from the remedy. I have seen but one case in which no reaction took place after a number of doses. This was in a case of spondylitis presented by Prof. Jolly. Tubercle bacilli had been demonstrated a few weeks before the injections were made. Prof. Jolly at the same time presented another parallel case; in this both local and general reaction took place after the first injection.

Case 4.—Max B., æt. 19 years, tuberculosis pulmoni. The initial dose was quite small, 0.002 ccm., as it should be in all cases of lung tuberculosis, for in these cases the lymph is a dangerous remedy. The reason is apparent if we but imagine such a local reaction as occurs in a case of lupus taking place in the lungs. From what I have seen in the wards and upon the post-mortem tables I believe that no case of far advanced lung tuberculosis should be treated by this method, at least not until further experiments have exactly defined the danger limit.

In this case the patient feels much better, night sweats diminished, and he has slightly gained in weight.

The above cases were from the wards of Prof. von Bergmann's and Prof. Gerhardt's clinics.

I have seen but three post-mortems, though more have been made. One a case of basilar meningitis. The treatment by Koch's method began very late in the disease. No demonstrable changes were found in the tubercular processes. The second, a case of far advanced lung tuberculosis, the entire upper lobes of both lungs having been involved. No changes due to the lymph could be demonstrated in the tubercular masses. The third, a case also of very far advanced lung tuberculosis. This patient had received but two injections, one of 0.002 and one of 0.003 ccm., the last injection having been given seven days before death. After the second dose the temperature rose and continued at 39° C. until death. In this case the upper lobes were entirely destroyed and the rest of the lungs in a state of caseous pneumonia. In the larynx a small ulcer seemed to be cicatrizing, otherwise no changes due to the lymph injections could be demonstrated in the tubercular processes.

On all sides cases of marked improvement have been reported, but time alone will tell the real value of the remedy. No doubt many important developments will soon follow, and I will endeavor to keep you posted.

I hope that I have not underrated the value of this "great discovery." I have been careful not to overrate it, as is the general tendency at present.

I think this rapidly written letter will give you somewhat of an idea of the state of the experiments and what has been done so far, at least as I see them.

MAURICE I. ROSENTHAL, M.D.

Berlin, Dec. 8, 1890.

Koch's Method in Pulmonary Tuberculosis.

Dr. E. Fletcher Ingals, of Chicago, furnishes the following clinical notes just received from Dr. Corwin, now in Berlin:

December 16, 1890. Charité Hospital, consumptive wards of Dr. Gerhardt. Kaschuer, painter, æt. 24, married, weight 135 lbs., mother and father both died of quick consumption. Patient, as a child, had typhoid, measles, scarlet fever. September last he began to cough, with some expectoration. At end of September had hæmoptysis (half cup). Had night sweats, chills in evening, some fever. Entered hospital October 30. Cough, weakness, chest pains on deep inspiration. Has good physique, dry skin, no gland trouble. Pulse was regular, 72; appetite fair, tongue coated. Physical examination gave: percussion note short at left apex (supra- and infraclavicular spaces), also behind in supra-spinous fossa of left side. Bronchial breathing in above locality, many moist râles on expiration and posteriorly, from seventh down evident pleuritic friction sounds. Vocal fremitus some weaker. Heart normal. Vital capacity 2,000 cc. (3,500 cc. normal).

November 6. Small ulceration on left arytenoid body noticed.

November 10. Physical signs about same as above, and left lower lobe behind shows signs of receding, catarrhal inflammation, tubercular bacilli quite numerous. From October 31 to November 18 temperature always normal substantially. Physical signs same as November 10, and weight same (126 lbs.).

November 18 received injection of two milligrams (0.002) of lymph, 9 A.M. Temperature gradually rose to 38° C. at 5 P.M., 39° at 6:30, 39.5° at 8:30, 39° at 9:30, 38.3° at 10, gradually falling off in next twenty-four hours to 36.4° on morning of November 20. The signs of first reaction were (injection at 9 A.M.): At 12 M. face became hot and flushed; at 5 P.M., pains in the left tibia and appearance of measly exanthema on face, with itching; 7 P.M., sweating, pulse dicrotic, conjunctiva injected, subjective feeling of heat not so evident, exanthema more marked; 8 P.M., lancinating pain in left apex.

November 20. He feels well, vital capacity 1,800. Received injection three milligrams (.003), no reaction of temperature therefrom; but slight constitutional disturbance, cough increased. Exanthemata became quite marked in evening;

sputum amounted to 40 cc. in twenty-four hours.

November 21. Right arytenoid body shows grayish white discoloration.

November 22. Injected 0.005 (5 mg.), no particular temperature reaction (37°), none of pulse or respiration. Bacilli found in not very large numbers and without morphological change; pains in neck, left side; slight dyspnœa.

November 24. Injection .008 at 9 A.M. (as usual); reaction of temperature 38.5° with slight constitutional disturbance; right arytenoid body but slightly ulcerated; both vocal cords congested; sputum 60 cc.

November 26. Injection 0.010 (10 mg.) 9 A.M.; hardly any temperature reaction, 37.3°; sputum formerly numulated and purulent, become mucopurulent, frothy, 30 cc. in amount.

November 27. Exanthema on face very marked in morning; ulceration on right arytenoid body still present; V. C. cords less congested (has receded); sputum 10 cc.

November 28. Injection 0.0150, slight reaction of temperature following (38.4°), slight constitutional disturbance, sputum 40 cc.

November 30. Injection 0.020, reaction slight, 38.2°. In the sixth slide examined (specimen of sputum) only one bacillus tubercle found.

Lung Changes.—Some dulness still present on left side, clavicular region. Bronchial breathing confined to upper part of left, supra-spinous space; mucous râles rare, but heard in fossa infra-clavicular, left side.

December 2. Injection .025, 9 A.M., reaction of temperature very slight, 38.1°; pulse and respiration unchanged, catarrhal condition of larynx greatly receded, ulceration but little evident.

December 3. Anterior pillars of fauces very red, large number of small inflamed patches appear on them (probably herpes?).

December 4. Injection .030, temperature reaction slight; 38.3° in evening; sputum 20 cc., but slight disturbance generally, weight 131 lbs.

December 5. Sputum largely increased, 80 cc.

December 6. Injection .040 (40 mg.) temperature reaction, 38.5°, sputum 40 cc., four slides (specimens) examined for tuberculous bacilli, none found.

December 8. Injection 0.50, reaction of temperature quite marked, sputum 20 cc.

December 10. Injection 0.060, hardly any reaction, 38.8°; sputum 20 cc. A new appearance of exanthema on face. Ulceration in larynx better, visible again, no bacilli found in the one specimen examined, vital capacity 1,980.

December 12. Injection .070, very typical reaction of temperature, 39.40°, accompanied by night sweats. Dulness at left apex still evident, no longer bronchial breathing, only occasional râles, 20 cc. sputum. Severe headache.

December 14. Injection 0.070, temperature 38.4° in evening; general disturbance very slight.

December 16. Injection .080, temperature in evening, 38.9°. Since December 10, only 10 cc. of sputum per twenty-four hours; catarrhal condition at apex almost gone. Sputum now entirely mucus, only small spot of slight bronchial respiration. No more night sweats. Bacilli could not be found in several specimens examined. Weight, 132 pounds; appetite good. Will report further as the case progresses.

This is but one of very many similar cases which give evidence by disappearance of night sweats and bacilli, purulent sputum and local signs of a constant improvement under Koch's treatment alone, combined with the usual dietary measures and recovery. And when it be remembered that in the past history of Charity hospital's consumptive wards, improvement and recovery have been very rare exceptions, and a gain in weight of five to eight pounds in two weeks never before reported, such cases as the above are the more significant. In two or three instances patients effected with lupus of many years standing have been discharged from Bergmann's clinic cured so far as present appearances go, after a treatment of from three to six months. Like diseased tissue when deep seated, as in the lung, must necessarily take longer for removal when separated by action of the "lymph" as it would seem, so that we may hope for a very fair determination of the pros and cons of this certainly wonderful remedy in the next few months, especially as the number of patients exhibiting all varieties of the disease is enormous in Berlin alone. It is very fortunate, too, that the "lymph" is being tested among Germans on German patients, for certainly America would never allow this amount of experimentation involving death in some instances, without what might become troublesome investigations. But Germans are asking very few questions and the doctors are telling very few lies about the deaths of those few patients fortunate enough to be hastened on a painfully lingering way. The syringe first recommended by Koch has become already obsolete, superseded by the ordinary piston hypodermic.

He goes on to say that abscesses have resulted from using these syringes, though never from using the ordinary syringe when it is properly cleansed.

My impressions gained thus far, lead me to believe in the beneficial, if not ultimately curative action of the new remedy, in cases of lupus and those cases of incipient pulmonary disease and of laryngeal involvement where the patient is of fair strength, especially among males. The patient must be able to bear the repeated induced toxæmia (of the lymph) and to throw off the diseased and disintegrated tissue as it is set free. Though the weight of evidence seems to be favorable, untoward results have been not a few among

weak patients, females and those far advanced in the disease.

The following case was of interest as illustrative of the intense reaction manifested at times:

Emilie Ricter, æt. 19, seamstress, entered Hospital Charité and examined November 19. Mother died of "pleurisy" (probably tubercular), father from "accident." One healthy brother; three other members of family died of lung trouble. Patient had diphtheria at 16. Menses regular, no childbirth, no abortion. Anæmia for last five years. Felt well till two years ago, when she changed occupation from maid to seamstress. For last year, pains in chest on right side; dry, hacking cough, no expectoration. Ten weeks ago (beginning of September) had "pneumonia," high fever eight days, since then severe cough and expectoration, no hæmoptysis. Night sweats last ten weeks, appetite poor, great general weakness.

Physical Examination.— Suffering expression of face—small woman, weakly. Non-pigmented anæmic skin, not dry. No exanthemata, conjunctiva and lips very anæmic. Glands not enlarged. Left apex two fingers' breadth, right apex one finger's breadth above clavicle. Dulness at right apex down to fourth dorsal vertebræ (hence more consolidated on right side), dulness down to second rib (anteriorly), particularly. Bronchial breathing and moist râles on left and dulness over left clavicle. Posteriorly no distinct dulness. Over left spine of scapula very harsh breathing and occasional crackling. Heart normal, except systolic anæmic murmur. Spleen normal, larynx normal. Patient's weight before injection 40½ kilos. Tubercular bacilli in enormous quantities. Hectic fever, generally rising to 38.6° C. in the evening and falling to 37.5° in the morning. From November 20 to 23 lost 2 kilos. in weight (indicating rate of loss).

November 24. .002 (2 mg.) injected at 10 A.M. Temperature 37° C., rose to 39.5° at 6 P.M., 39.1° at 9 P.M., and fell to 37.2° at 6 A.M. During reaction pulse went up from 100 to 120, respiration from 20 to 25. A chill at 5 P.M. (November 24), lancinating pains in right chest, vomiting, nausea, headache and dizziness. Cough not increased, but expectoration doubled.

November 25. Rose to 39° at 6 P.M. without new injection, fell to 36.5° at 9. Respiration and pulse unchanged. Complains of pain in chest, and arytenoid bodies show slight discoloration.

November 26. Injected .005 at 11 A.M. Temperature at 37°, rises to 40.4° (104.6° F.) at 6 P.M., where it remains for three hours, falling to 38.5° at midnight. Pulse during reaction went up from 100 to 130. Respiration from 22 to 60 at 6 P.M.

Examination of Lungs.—No change in right upper lobe. Posteriorly, left upper lobe now shows very distinct dulness to spine of scapula, with bronchial breathing and numerous metallic râles. Patient on this day (November 26) had a severe chill from 12:30 to 2 o'clock. From 4 to 5:30 another chill. During reaction no sweat, but great feeling of warmth. Greater tendency to cough, more expectoration, which is more mucus.

November 27. Temperature normal in morning, respiration normal. In evening former hectic, 38.4°. Feels well, but no change in lung.

November 28. Injected .008 at 9 A.M., with normal temperature. 39.4° at 6 P.M.

November 29. No injection; usual hectic in evening, expectoration much increased. At left apex bronchial breathing has given place to harsh vesicular type. Consonant râles no longer heard. Dulness less extensive.

November 30. Injected .010 at 10 A.M. Temperature normal. At 6 P.M. temperature 39.5°, falling to normal at 3 A.M. Repeated examination shows at posterior left apex no bronchial breathing; dulness far less evident.

December 1. Hectic rises in evening to 38.6°.

December 2. .01 (1 centigram) injected at 9:45. Temperature 37°, at 6 P.M. temperature 39.8°. She complains as usual during reaction of headache, nausea and a feeling of great warmth, no sweat, sleeps well.

December 3. Hectic rises to 38.8° at 6 P.M.

December 4. At. 12 injected .015. Temperature 38.2°, fever rises up to 40.1° at 6 P.M. Respiration 60 at 9 P.M., temperature and respiration normal at 6 A.M.

December 5. Hectic rises to 39.2 at 6 P.M.

December 6. Injected .015 at 9:30 A.M., temperature, pulse and respiration normal, 6 P.M., temperature 39.5°, slight dyspnœa; 9 P.M., temperature 39.3°, respiration 72, pulse 120. Intense pain in chest, nausea, vomiting, night sweats, cough and expectoration not increased. Morning weakness. Tubercle bacilli very numerous, no lung change to be detected.

December 7. 9 P.M., hectic low again, 38.2.

December 8. Injected .015. Temperature 38.1°, rises to 39.1° at 6 P.M., respiration to 52, accompanied with chill, night sweats, pain in left shoulder—no lung change.

December 9. Hectic at 6 P.M., 38.7°.

December 10. Injected .015 at 9:30 A.M., at 12 pulse at 40, at 6 P.M. temperature 39.6°, no dyspnœa particularly, though respiration 40.

December 11. Hectic of 39.7°, pulse 125, respiration 42. Dulness increased anteriorly down to third rib on both sides. Tubercular bacilli still present in large numbers.

December 12. 37.2° A.M., 39.2° P.M. Patient complains of little sleep, headache, great weakness. Cough increased. Slight hypostasis in base of left lung, axillary region.

Decemper 13. Temperature 37.6° A.M., 39.2° P.M.

December 14. Temperature 37.2° 6 A.M., 38.6° 12 M., 38° at 3 P.M., and 39.6° at 6 P.M.

December 15. Temperature 38.2° at 6 A.M., 38.8° at 12 M., 39.4° at 6 P.M.

December 16. Temperature 38° at 6 A.M., 39.3° at 9, 38.2° at 12, 40.1° at 3.

December 17. Temperature 37.6° at 6 A.M., 38.2° at 6 P.M.

From December 11 to 16 a cavity has been forming at right apex, of which the high hectic between injections is expressive.

Temperature in these cases taken in axilla, every fifteen minutes.

SPECIAL CORRESPONDENCE.

Shall The Journal be Removed to Washington?

To the Editor:—In my opinion, the idea of removing THE JOURNAL from Chicago should never have been entertained at all, and I believe it is the desire of a majority of the members that it remain where it is. Chicago is near the geographical centre of the United States, is a great medical centre, and, being by far the greatest railroad city in the country, is better able than any other to distribute THE JOURNAL, speedily, in all directions.

If, however, this question is to be acted upon, let us not wait until the next meeting of the Association, and allow it to be decided by a sectional vote, but submit it to the entire membership and allow us all to have a voice in the matter.

I suggest that you inform us, through the columns of THE JOURNAL, at what time the vote will be taken; then send a blank with each copy of one issue of THE JOURNAL, and impress upon the members the importance of filling it *at once*, before it is lost or forgotten, and sending it either to the Secretary of the Association, or to a committee appointed to count the votes.

It seems to me that this is the only just way to settle the matter, for we are all interested, and entitled to a vote, whether we be country doctors in Illinois or Dakota, or city physicians in Philadelphia, New York or Washington.

F. W. DIMMITT, M.D.

Oneida, Ill., January 6, 1891.

To the Editor:—Let THE JOURNAL remain in Chicago. B. F. HART, M.D.

310 Front St., Marietta, O.

To the Editor:—THE JOURNAL should remain in Chicago:

First. Because Chicago is centrally located for mailing facilities.

Second. Because Chicago will soon be as well supplied with library advantages as any city in the United States.

Third. Because Chicago is nearer the centre of the membership of the American Medical Association, and consequently more in touch with them.

Fourth. We are opposed to moving it to the East from the West. H. B. TANNER, M.D.

South Kaukauna, Wis., January 9, 1891.

To the Editor:—I am satisfied with our Journal's present location.

CHAS. W. ROOK, M.D.

San Antonio, Tex., January 8, 1891.

To the Editor:—My vote is for THE JOURNAL of the A. M. A. to remain in Chicago, for the simple reason, that said city is near the centre of this "*Great Republic.*" Any of the large Western cities would be preferable to the city of Washington, D. C. "Westward the star of empire rolls." DAVID S. BOOTH, M.D.

321 N. Jackson St., Belleville, Ill., January 9, 1891.

To the Editor:—I say yes. Washington is not a place of common trade or manufacture, as are other cities of our country. It is our capital, with its many attractions, the pride of the American citizen. It should be made the headquarters of the arts and sciences. THE JOURNAL should be placed with the Medical Museum and Library, and all physicians should have pride enough for their profession and country to cheerfully support it, so as to make it the peer in medical literature of the journals of any country.

What THE JOURNAL most needs and should have is the united support of the medical profession. JOSEPH WAGGONER, M.D.

Ravenna, O.

MISCELLANY.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 3, 1891, to January 9, 1891.

By direction of the Secretary of War, the following-named medical officers will proceed without delay to Pine Ridge Agency, S. Dak., and report in person to the commanding General, Dept. of the Platte, for duty in the field: Capt. Henry S. Kilbourn, Asst. Surgeon; Capt. Edwin F. Gardner, Asst. Surgeon; Capt. Edward Everts, Asst. Surgeon. Par. 9, S. O. 304, A. G. O., December 30, 1890.

Brigadier General Charles Sutherland, Surgeon General, will, as soon as practicable, repair to this city, and assume the duties of his office. By direction of the Secretary of War. Par. 9, S. O. 2, A. G. O., Washington, January 3, 1891.

Major James P. Kimball, Surgeon, assignment to duty at Ft. Supply, Ind. Ter., in S. O. 132, Dept. of the Missouri, September 24, 1890. By direction of the Secretary of War. Par. 6, S. O. 4, A. G. O., January 6, 1891.

APPOINTMENT.

Col. Charles Sutherland, Surgeon, to be Surgeon General, with the rank of Brigadier General, December 23, 1890. Vice Baxter, deceased.